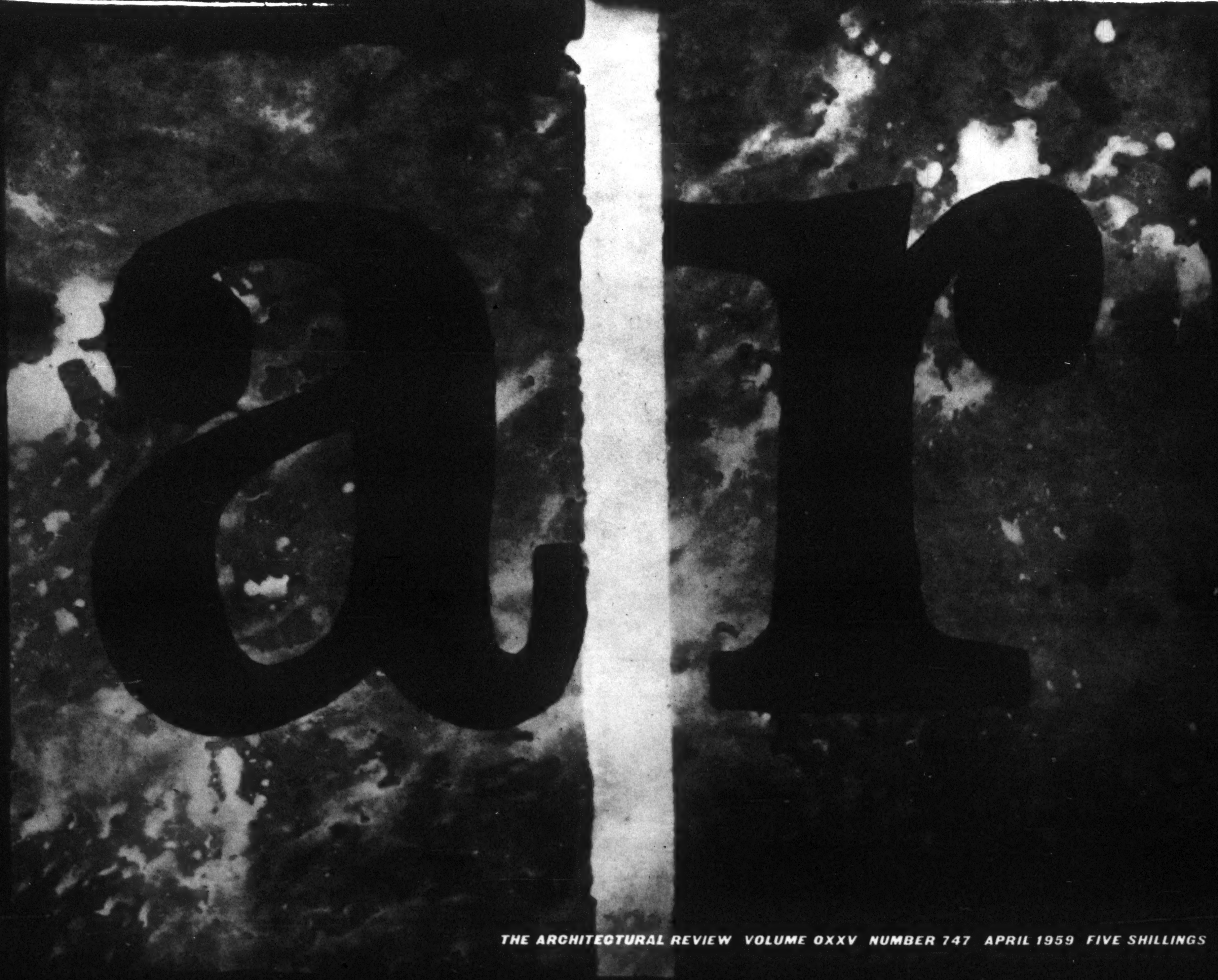

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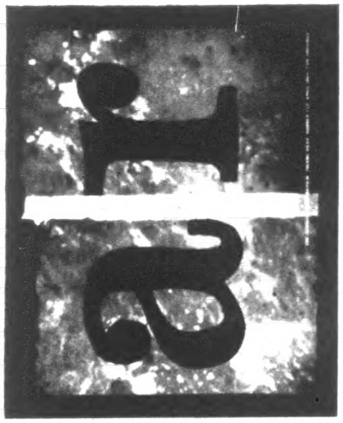
THE ARCHITECTURAL REVIEW

Volume 125 Number 747 April 1959



On the cover, a photogram by Kenneth Garland continues THE ARCHITECTURAL REVIEW'S policy of periodically appearing with a purely typographical exterior, in order to emphasize the range of possibilities in lettering that have been opened up by new graphic techniques, and to proclaim once more its belief in the importance of lettering among the companion-arts of architecture a theme that is further emphasized in Nicolete Gray's article on *Expressionism in Lettering*, which appears on pp. 272–276.

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CORRESPONDENCE

Engineering of Excitement

To the Editors.

SIRS, Your November issue, just received, displays on its cover drawings of five combinations of hyperbolic paraboloids.

Your comment on the frontispiece mentions that these are studies by students of the American engineer Catalano.

I would hesitate to raise a seemingly trivial correction by pointing out that Mr. Catalano is not an engineer, were I not compelled by other motives than pedantry.

Mr. Catalano is an architect.

This fact is only important in one respect: it is the architect, and only the architect, who can finally combine structural ingenuity with spacial meaning and correct scale. We need not even mention Soane's breakfast room (however much it is a 'structural fake') or Galla Placidia's tomb to realize that scale and geometric and structural forms in the hands of an architect-designer combine into an absolute whole. I mentioned these two examples intentionally, as they are diminutive in dimension and vast in scale.

This is the architect's mastery displayed. We have for so long now had to take our lead from the engineer, due to our complete poverty in purely architectural knowledge, that we seem to be trusting him wherever he leads us.

Catalano is tackling his investigations from the correct end: his first and main consideration is that of scale, and I mean architectural scale. The fact that he is investigating a 'new' structural shape is completely irrelevant in the final assessment of spacial values. After all, we haven't most of us yet mastered the architectural consequences of a cross vault.

Yours, etc.,
S. Buzas.
Lagos, Nigeria.

Venezuelan News Letter

To the Editors.

SIRS, Interesting and informative as your Venezuelan Newsletter (November, 1958) was, I should like to comment on some of the points mentioned by your correspondent.

The true splendour of the Banco Obrero housing schemes here in Caracas lies, I feel, not in the attempt 'to preserve a human scale on the often dramatically-terraced sites,' but in the achievement of exploiting these sites with long, high cliffs and slabs of reinforced concrete frames, infilled with brilliant primary colours. Set against the mountain range, the whole is magnificently monumental in a way that is entirely architectural, and needs no apology in 'human' terms.

Few Caraquenans imagine the schemes 'unite all classes of society' (in the common purpose of a better life). Admirable as they both are, one might as well refer to the Peabody Trust Housing with much the same degree of accuracy.

Lastly, and this on a point of

honour, the name of the largest scheme, the 2nd of December (used by your correspondent) has for some time been disused, as being associative of the old dictatorial regime. The new name, The 23rd of January, commemorates the day of revolution in which the scheme's inhabitants played such an important part.

Yours, etc.,
ROBERT ALAN CORDINGLEY.
Caracas, Venezuela.

Boston Manor

To the Editors.

SIRS, The argument between Ian Nairn and Peter Chamberlin over The Boston Manor plan has shaped an ultimate question in model form: should a total architecture completely frame a community; or should architecture (and everything else, too) be totally subservient to that community, which expresses itself chiefly through the combination of individual desires and activities? Should things frame people, or people things? An 'overall coherent framework' may be a human requirement: it does not, necessarily, need to be an immediately visible (or, indeed, a consciously architectural) framework; certainly not a once-and-for-all framework devised by one small group; it will have many textures, of which architecture may not be the most important ingredient.

Chamberlin feels, in common with many other architects, that architecture, as well as being mistress of the arts, ought also to be mistress of everything else; especially sociology, of which, strange to say, few architects have made an intensive study. How revealing is his remark that Nairn thinks solely with his emotions! Emotion is what counts in the humanities, as also in art. In the last resort, contrary to Chamberlin's opinion, it is *not* the architecture which matters.

The sketches, which Chamberlin naïvely assumes will disprove inhumanity and sterility, can only be described as pitiful; the humanity lies, not in the dreary indications of 'architecture,' but in the pictures of plants, lanes, market stalls and people. It is interesting to try blocking out the buildings, and substituting almost anything else; the scenes do not suffer, and in some cases are distinctly improved.

Nairn, who has observed closely the interaction of individuals (not *usually* consciously) to produce facets building to a whole, and thereby expressing a social pattern, has come to realize an important truth that conscious architecture in large quantities is a dangerous piling up of rigid frames against flexible man. This is equally true, too, of deliberately romanticized and randomized architecture in large quantities. Harlow is a warning example of this last; as Boston Manor might become of the first instance. Nairn's accusations lack of identity, sterility, limitation of types, forcing of an aesthetic on people although, perhaps, severe, are on the whole accurately levelled.

I, too, admire the Golden Lane scheme; it is, as Nairn observes, on a small scale; it is, in fact, small enough not to matter.

Yours, etc.,
C. FLEETWOOD-WALKER.
Birmingham.

David Bomberg

To the Editors.

SIRS, Commenting on the choice of younger British artists to be exhibited in Australia, your contributor Robert Melville dwelt for a space on the art of David Bomberg, whose work was almost unknown until the Arts Council Memorial exhibition. Even there, the space available permitted only a few works to be shown, but they were a revelation to the younger generation, revealing a wide field of penetrative vision, and one of the most courageous spirits in the British revolutionary contribution to painting, as opposed to the utter sterility of the Academic tradition.

Bomberg was concerned with the emancipation of the brush-stroke and paint texture as a means and a means only of the appraisal of the whole, and I am surprised that your contributor should have chosen a work of the Palestine period (1923), smooth and concise in brushwork, to illustrate what he calls the demonstrative brush-strokes of the 1948 works. Bomberg was not concerned in the later period with the purely physical sense of form, but with form as an expression of Man's awareness through all the senses, translatable through the mind, influenced by collective archaic experience and inheritance which coincides with Bishop Berkeley's view that the eye is a feeble and limited instrument of perception.

He conveyed his experience generously to his students at the Borough Polytechnic, but he endeavoured particularly to make his findings and approach known to architects, since a sense of form is so important a necessity in their field. The late Professor Reilly recognized this when he recommended Bomberg to the Bartlett School of Architecture, London University, where he taught draughtsmanship, as he understood it, to a limited number of architectural students.

Yours, etc.,
(MRS.) LILIAN BOMBERG.
Hampstead.

Robert Melville replies:

I would have preferred to reproduce either 'Moorish Wall, Cyprus' or 'Rock Fortress, Cyprus,' both dated 1948, if they had been among the photographs I was shown at the Gallery, but I think I made it clear in my article that the picture reproduced was intended to illustrate not the 'demonstrative brush-strokes' but 'the good if conventional eye for the main features of a landscape.'

I agree with Mrs. Bomberg that it was intelligent of Professor Reilly to arrange for her husband, who was a very serious artist, to teach drawing at the Bartlett School of Architecture.

Lettering

To the Editors.

SIRS, In my forthcoming book on Architectural Lettering, I shall be reproducing most of the illustrations which have appeared in the REVIEW in my articles on this subject. I should like to record the name of the designer, and the date and technique of the work in each case. If designers whose work has appeared would write to me giving me these details it would greatly help me to avoid omissions and errors.

Yours, etc.,
NICOLETE GRAY.
Greenwich.

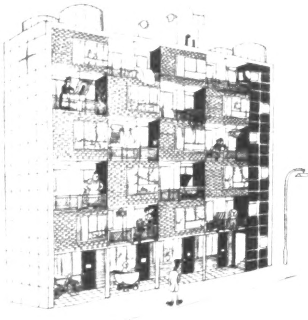
Articles appeared in the following numbers: 1954, April, June, August, October; 1955, April, December; 1956, August; 1957, April, October; 1958, July; 1959, April, May.

MARGINALIA

The Art of Reissuing—with a Flourish

Osbert Lancaster's two unmonumental tomes on the history of architecture, *Pillar to Post* and *Homes Sweet Homes*, with their disenchanted view of the Modern Movement, were gentlemanly signals of a minor cultural crisis that convulsed educated English taste in the early Forties. They are as much a fission product of the disintegration of the Socialist - Abstractionist - Functionalist-Freudian intellectual package-deal of the Thirties as were the jeremiads of Cyril (Palinurus) Connolly. But they were more than that in an age of pre-Hitchcockian innocence, they were a first guide through the maze of nineteenth-century architecture, complete with a set of terminologies that have gained permanent currency, even in 'serious' art-historical circles: Pont Street Dutch, Aldwych Farcical, Kensington Italianate, Edwardian Baroque, Bankers' Georgian, Vogue Regency and so forth.

Now the pair of them have been reissued in high style and a single cover, under the title *Here of All Places* (John Murray, 21s.), brought up to date and extended to cover the US as well. Some of the new material is as ferociously telling as the old: *Festival Flats*, 1, for instance, pins down a moment in English architecture with lepidopterist precision, identifies and names a period already dead, with the epitaph '. . . a terrifying ingenuity was displayed in modifying or concealing the basic chequerboard imposed by the LCC's devotion to absolute residential equality.' The American additions ('so subtly but yet so unequivocally different') discriminate between early and late skyscrapers, pay tribute to Carpenter Gothic, to Old Brownstone and to the genius of Addison Mizener, the man who was Florida, 2. But one wonders if the Lancastrian name for this last will become current. *Spanish Super-Colonial* is a mouthful compared with *Pseudish*, his earlier coinage for the tame European version of the same thing, and in any case, he is no longer alone in the name-game. His version of the Old Charles Addams House, to take one example, 3, is *Hudson River Bracketted*, but it will have to compete not only with Professor Hitchcock's resoundingly Johnsonian *Second Empire* and *Cognate Modes*, but also with John Maass's succinct and descriptive *Mansardic*.



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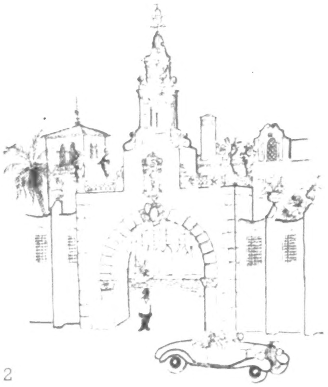

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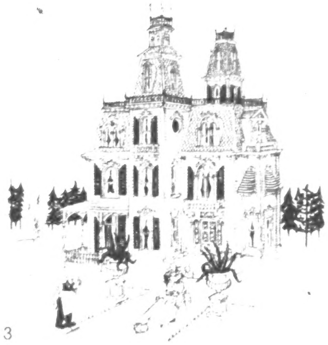
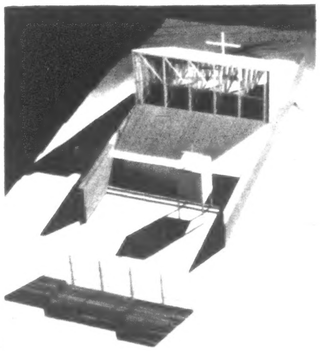


3

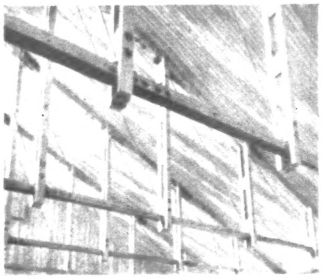
Ecclesiastical Sophistication

The degree of elegant sophistication that the Finns are able to conjure nowadays from mixtures of traditional and synthetic materials reaches something of a peak in the Forest Church at Otaniemi which has recently been completed by Kaija and Heikki Siren. The basic structural strategy is shown in the model photograph, 4, which shows the overall formality of conception, and the treatment of the church proper as a space roofed, and lit, by an exaggeratedly split-ridge roof, the higher pitch, which stands clear of the side walls, having an independent structure of 'clothes-pin and bracer' trusses, 5. Where the design reaches extremity is in the treatment of the east wall (liturgically speaking) as



4

Bauen und Wohnen



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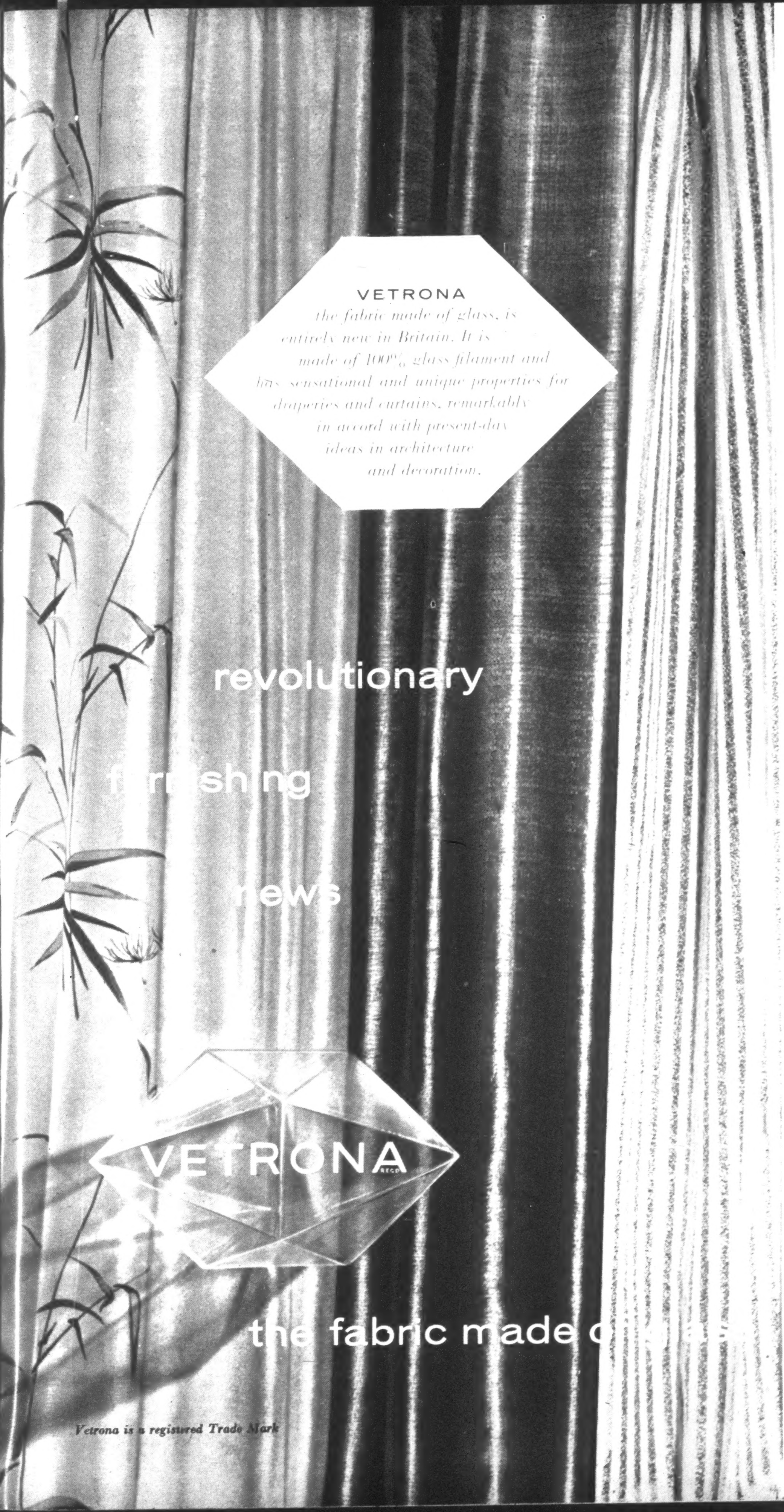

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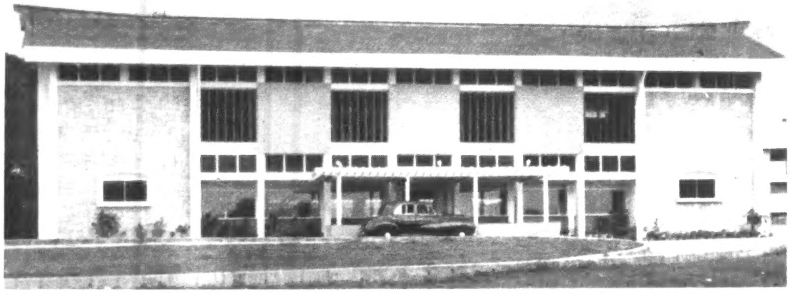

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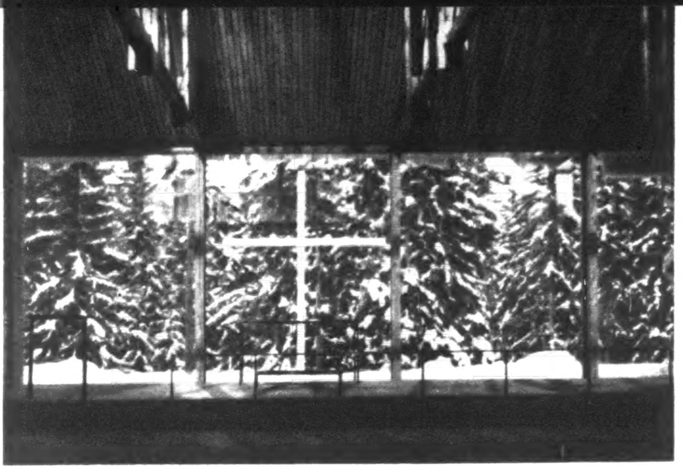

6

Bauen und Wohnen

an area of unbroken glazing, so that the eye, unhindered by the almost-invisible chancel furniture, 6, passes straight through to the outdoor cross, and the screen of snow-laden forest trees beyond.

Threat to the Villa Savoye

Immediately following the publication of Dr. Pevsner's article in the March AR, discussing what time has done to Le Corbusier's buildings, comes the news that one of the most important of them historically, as well as architecturally, the Villa Savoye at Poissy, is threatened with immediate demolition. The local authority plans to expropriate the site for, it is understood, the expansion of a neighbouring school.

The plea put forward by Dr. Pevsner that the early Le Corbusier buildings should be scheduled as historic monuments thus becomes a matter of real urgency. A campaign has already been started, in Britain, America and elsewhere, to persuade the French Ministry of Cultural Affairs to take this action, but by the time this note appears the fate of this key building in the history of modern architecture may have been settled.

What would be ideal, if it is not too late, is to revive the scheme put forward in America some years ago, to acquire the building as some kind of centre for post-graduate students. That would constitute a lasting and fitting tribute to Le Corbusier at the end of his career.

OBITUARY

Felix Samuely, 1902-1959

Felix Samuely was one of a small group of exceptionally talented engineers who did much to influence modern architecture in this country. Most architects will be aware of his more important works, which started with the Bexhill Pavilion and Wells Coates's Palace Gate flats. He was the consultant engineer for Powell and Moya's South Bank skylon and a great many of the more interesting post-war commercial and industrial buildings, his last being the American Embassy.

He would have made an impression on architectural thought merely by his executed works, but to understand fully the impact that Samuely has had on our architecture, one must realize his enormous influence on students in the period 1938–1948. This was the generation that had the first responsibility of bringing his teaching into their work. Ten years is a short time to establish a new approach to the design of structure, and when one remembers that it coincided with the leanest years in the history of English building, one begins to see the magnitude of his task. Structural purity was not first on the list of the young architect's beliefs, and at this time the teaching of structures was rather limited in its approach. It was more concerned with how to make calculations than why calculations were necessary or the selection and investigation of structural possibilities.

Samuely was born in Vienna, he studied and worked in Berlin, and came to England in 1933. He began to lecture at the A.A. School in 1937, and his engaging manner and fresh approach found an immediate response among the students. At this time he gave only a few lectures in the upper part of the school, but in 1939 there was a demand from the students for a great deal more of his teaching. He increased his lectures over the whole range of structural theory, and during the war years he became one of the dominant personalities in the school. From 1939–45 he was extremely busy, but he always found time to journey to Barnet to give his lectures, and when the school returned to Bedford Square, and many new staff were needed to cope with the increased numbers, Samuely's knowledge and influence proved an invaluable link between pre-war and post-war methods.

He was obviously a first-class mathematician, and his life was full of experiment as well as instruction. In 1943 he designed the Heston hangar, which was a brilliant piece of engineering, a light braced welded frame. He was a master in the application of the trussed beam, and a fervent advocate of structural economy. He accepted economy both in its ordinary sense of saving money and in the visual sense of an extreme elegance and lightness of material. Fielden House, London Bridge, completed in 1954, had pre-cast floors which cost less than the price of shuttering for normal in-situ work.

Although he was interested in the structural possibilities of all materials, one is able to trace a progression of thought and experiment, beginning with light steel in the early forties, through the blending of steel and concrete in the trussed beams of the Hatfield Technical College in 1948, to the pre-stressed concrete work of his later life. More than any other of his contemporaries, he made use of the idea of pre-cast concrete units with rigid connexions. He was passionately interested in methods of joining structural members, and was always alive to the complexities of practical building. He did not force his ideas upon his clients, and he seemed more pleased than otherwise if the problem required some unorthodox solution. In teaching, he made it quite clear that he thought mathematics was important for the engineer, but not for the architect, and the attitude he demanded of his students was that they should have a clear, logical approach. His influence on teaching went outside the A.A. School and, through the agency of J. de C. Henderson, he was largely responsible for the complete revision of the R.I.B.A.'s examinations in structure.

He achieved his influence partly from his obvious ability, but also from his charm. He liked students and he liked them most when they were imitating some of his peculiarities. He enjoyed putting on fancy dress, and even took part in the A.A pantomime. His success as an engineer inevitably brought him more and more work, and very reluctantly he had to reduce the number of his lectures in 1955. It is a tribute to his sincerity that he continued with teaching when his office was one of the busiest in London. He will be missed by many architects, but also in education. The small man with the rotund figure, a slight wobble and a splendidly twinkling eye will be an immense loss.

Michael Pattrick

E. C. Gregory

Peter Gregory was a quiet, self-effacing business man from Bradford who had an almost Heraclitian sense of the inevitability of change, and lent his support, both as private benefactor and collector and as Director of a large printing and publishing house, to new movements in the arts even when these seemed absolutely opposed to the work of artists he held in high esteem.

The monographs on such contemporary artists as Moore, Nicholson, Gabo, Hepworth and Nash which stand to his firm's credit, and the one on Sutherland not yet published, reflect his abiding interest in artists who have made the grade and whose work he bought when they were little known, but the majority of his recent acquisitions are the work of much younger artists. He gave the hard-hitting, avant-garde magazine *Focus*, produced by A.A. students, the kind of backing that kept it going long enough to make its point, and at the other end of the scale, joined the board of *The Burlington Magazine* at a critical moment and made room for its Editor and staff in his London offices.

He was prepared to join the committee of any association or society and wait on Ministers with any deputation that was concerned with the encouragement of the arts. I first met him after the second world war when we were both attending the endless preliminary meetings that led many months later to the founding of the I.C.A. There was much quarrelling at those early meetings and the company was continually changing, but Peter Gregory, who was then in his late fifties, seemed already to have the smiling yet slightly remote tolerance of an old man and whilst showing interest in every point of view put forward, waited patiently and immovably for the moment when it would be worth while to proceed to the election of officers. He would never have allowed himself to be jockeyed into playing the leading role in the Institute, but he accepted the unenviable job of Treasurer, and with Roland Penrose and the late Peter Watson, helped it to survive a long series of financial crises.

Much of the good work he has done for the arts is of a kind that leave no trace of his intervention, and it is to be hoped that the Fellowships which he started at Leeds University for young poets, painters and sculptors, will somehow be perpetuated under his name. He once told me that he had been working for years on a long novel. If it should be found, it might shed some light on the philosophy of a man who had a genius for appearing to be a smiling and disinterested observer of the many activities of which he was the enthusiastic instigator.

He wanted to spend the last years of his life under a blazing sun, and was seriously thinking of going to live in India, where he spent several happy months watching the new city of Chandigarh coming into being. So it was not altogether inappropriate that when the end came he was very far from home. His imagination was captured by those building projects which seem to symbolize the efforts of an entire people to make a new life for themselves, and when he died on February 9, at the age of seventy-one, he was in the new state of Ghana, having gone there to see the buildings that his friends Maxwell Fry and Jane Drew are erecting in the capital.

Robert Melville

Laboratories at Rangoon

Acknowledgment should have been made in the March issue for the colour block on the cover, which appeared by courtesy of Messrs. Holland & Hannen and Cubitts Ltd., and Henry Hope Ltd. We apologize to both firms for this omission.

ACKNOWLEDGMENTS

FRONTISPIECE, page 230, *The Times*. NEOLIBERTY, pages 231–235: 2, Fototecnica Fortunati; 3, 4, 7–10, Casabella; 5, 6, 11, L'Architettura; 12, Michael Wickham in 'House and Garden.' OFFICES AT PADDINGTON, pages 236–241: Galwey, Arphot. ELEVEN DANISH HOUSES, pages 247–253: 1, 6, 7, 9, Harald Plum; 2, 3, 19, Strüwing; 4, 5, Thy Christensen Studio; 8, 11–14, 17, 18, K. Helmer-Petersen; 10, Erik Hansen; 15, 16, Hammerschmidt Photo; 20, Henrik Iversen. THE OPEN STAGE, pages 254–262: 1, Max Fleet; 2, 22, reproduced from Methuen's 'Outline of the Theatre' by H. and R. Leacroft, 1958, by courtesy of the publishers; 3, International Lighting Review; 4, Edward A. Bourdon; 9–15, 20, R. Leacroft; 16, Roberto Aloi; 17, James O. Sneddon; 18, Bauen-Wohnen; 19, Ben Schall; 21, Rada Photography. REMOUNTABLE PALACE, pages 263–265: Gernsheim Collection. INTERIOR DESIGN, pages 266–270: 1–3, Mann Bros.; 4–8, Priscilla Conran; 9–11, Alfred Cracknell. DESIGN REVIEW, page 271: 1, Da nalco. EXPRESSIONISM IN LETTERING, pages 272–276: 2, 3, 9, 28, McCallum, Arphot; 4, Galwey, Arphot; 5, Sadra; 6, 7, 11, I. de Wolfe; 8, Victoria and Albert Museum; 12, British Museum; 13, 14, 24, S. Lang; 15, 20, Toomey, Arphot; 16, Ernst Schneidegger; 17, 18, 23, 25, 26, Nicolete Gray; 22, National Buildings Record; 27, Gerrit Burg. CURRENT ARCHITECTURE, pages 277–280: 6, 7, Galwey, Arphot; 8–10, Essex Education Committee. MISCELLANY, pages 281–288: Exhibitions, 1, James Mortimer and Arts Council of Great Britain; 2, Arts Council of Great Britain; 6, Foto-Gnilka. Art in Use, 1–3, Galwey, Arphot; Centenary, 1, Eric de Maré. Counter Attack, 1, 2, 5–7, Nairn, Arphot. SKILL, pages 289–292: 3, H. Newport-Gwilt; 5, Stewart Bale Ltd.; 6, Commercial Studios; 7, Fox Photos Ltd.; 8, A. J. Bacon; 10, Langley London Ltd.; 9, Geo. M. Turrell; 11, Photowork Ltd. THE INDUSTRY, pages 294–296: 1, F. C. Pritchard Wood and Partners.

The giant scale of the works for the London-Yorkshire motorway, contrasted to the scale of an existing major British road—A45, Northampton to Weedon—which it crosses at Upper Heyford, ☚ opposite, emphasizes the dramatic break the new motorway programme will make with the existing detailing and dimensioning of the English scene. This, in its turn, emphasizes the need to build architects and landscapists into the motorway design-team right at the beginning, as Raymond Spurrier points out in an article on pp. 242–246, instead of calling them in late to cosmetic the raw edges of the road-engineers' work.

Reyner Banham

NEOLIBERTY

THE ITALIAN RETREAT FROM MODERN ARCHITECTURE

The present baffling turn taken by Milanese and Torinese architecture probably appears the more baffling to ourselves, viewing it from the wrong side of the Alps, because of the irrelevant hopes, the non-Italian aspirations of our own, that we have tended to project on Italian architecture since the war. Without realizing what we were doing, we built up a mythical architecture that we would like to see in our own countries, an architecture of social responsibility—stemming, we believed, from such political martyrs as Persico, Banfi, the younger Labo—and of formal architectonic purity—stemming from Lingeri, Figini, Terragni. This architecture, socially and aesthetically acceptable to men of goodwill, we saw embodied in particular in the Milanese *BBPR* partnership, of which the first *B* was the martyred Banfi, the terminal *R* was Ernesto Rogers, the hero-figure of European architecture in the late Forties and early Fifties.

The evidence of the eyes often contradicted the myth; again and again the architectonic qualities that we sought were to be found in work of the Roman school, notably (and surprisingly) in the work of Moretti, whom the Milanese would brush off as 'not socially serious' while the awkward questions of modern eclecticism raised by the work of Luigi Vagnetti had a way of being unformulable except in terms that put Milan on the spot as well. Nevertheless, our hopes continued to reside in Milan, in the *Triennale*, in *QT8*, in the *Compasso d'Oro*, in *Communità*, in *Domus* and, even more, in *Casabella Continuità*, Persico's famous magazine of the Thirties revived under Rogers's editorship.

But when *Casabella* began to publish, with manifest editorial approval, buildings that went far beyond Vagnetti's in historicist eclecticism, when the BBPR partnership staged for the London Furniture Exhibition of 1958 an Italian section that seemed to be little more than a hymn of praise to Milanese *borghese* taste at its queasiest and most cowardly, and when, finally, the Italian exhibit at the Brussels Exhibition was seen, then confusion followed hard on disillusion. But behind our own private reactions there remain the buildings that produced them, and the attitude that produced the buildings, an attitude that even other Italians, like Bruno Zevi, clearly regard as wrong-headed and misguided. Indeed, these recent works of Gae Aulenti, Gregotti, Meneghotti, Stoppino, Gabetti, their associates and followers, and the polemics advanced in their defence by Aldo Rossi and others—all these call the whole status of the Modern Movement in Italy in question.[*]

Historically, the modern movement has always had a meagre foothold in the Peninsula, and has depended on flukes of patronage. Before the war, modern architecture hardly existed out of earshot of the railway line from Milan to Como, an area where the backstage influence of Marinetti (whom Sartoris once acknowledged in print as a patron of the movement) and other Fascist Modernists was most likely to be felt. Within that narrow zone, 'modern' was practised as a style, since it could not be practised as a total discipline—as the literally hollow formalism of Terragni's *Casa del Fascio* at Como brilliantly demonstrates. Since the war it has relied chiefly on a post-partisan mood of social responsibility and conscious avantgardism in the cities of the north, on foreign relief programmes, and—as we have all been forced to know by a brilliant public-relations campaign—on Olivetti. But let that mood wither, let those relief programmes pass into Roman hands, let Olivetti's stylistic determination waver . . . the bulk patronage of architecture still comes from the government and from the *borghese* classes, neither of whom has much use for out-and-out modernism, especially in domestic work, which is where the retreat from modern has begun.

Recall the crushing Fascist tenements in *Ladri di Biciclette*, the dark, overstuffed interiors of Moravia's early stories. Set against them the blocks actually being built for low-rental housing by SGI and even INA-Casa, or the interiors in which rising Italian film-stars are photographed 'at home,' and depressingly little has altered beyond the detailing, and some amelioration of space standards. Recall too the homeless, starving, couple in *Miracolo a Milano* whose first wish was a crystal chandelier, and you know something bitter about Milanese mental processes.

Practically everyone who is buying or renting domestic accommodation in Italy today wants forms and structures that give better immediate value for money than out-and-out modern affords, and giving, iconographically, immediate and reassuring evidence of the building's domestic nature—be it *signorile* at one end of the social scale, *casalinga* at the other. Such requirements do not necessarily rule out good architecture, as Quaroni's work at La Martella, in the face of economic desperation, and Moretti's *Casa del Girasole*, in the teeth of economic affluence, amply demonstrate. Above all, there is in both of these, and in some other comparable works, a degree of progressive aspiration, a forward-looking aesthetic, even when structural techniques and social orders seem a millenium behind those for which the modern movement was created.

But the retreat harks back, consciously and avowedly, to what Aldo Rossi calls 'the forms of a middle-class past,' to the *Tempi Felici*, to the good old days when the northern cities were growing fat on the proceeds of the industrial expansion of the early nineteen-hundreds, when the Simplon had just been triumphantly pierced, when the Milan International Exhibition of 1906 was the talk of Europe—and when *Lo Stile Liberty*, Italian Art Nouveau, still held sway, but was beginning to lose its fine careless flourish under influences from beyond the Alps.

Paolo Portoghesi seems to have been the first to call the style of the Retreat by the apt term 'Neoliberty' as late as the end of 1958,[†] but the Liberty content of the style has been clear from the start, and underlines the fact that this is not just an isolated piece of juvenilia (the Neolibertarians are all young) but something for which the whole body of Italian modernism must share the blame. For more than three years now, leading architectural periodicals in both Milan and Rome have been working over the remaining monuments of Art Nouveau in a degree of detail that bespeaks a more than historical interest. Works of Gaudi, Sullivan, d'Aronco, Horta, and the Viennese school, in particular, have been described and illustrated even to the extent of the original drawings and colour-blocks of their exteriors, supported by texts that were far less expository or explanatory, than they were eulogistic and rhetorical.

Where the oddity of this situation struck the present writer most forcibly was in the way in which Italian writers dealt with Sant'Elia, playing down his Futurism, playing down his influence on later architects, but emphasizing his *origini Liberty*. Again, Gillo Dorfles, most intelligent and least parochial

[*continued on page* 235

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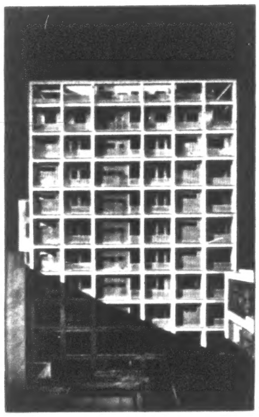
[*] Rossi's polemic, and illustrations of typical works of the Retreat, can be found in *Casabella*, No. 219 (other buildings had been illustrated earlier in No. 217), Zevi's editorial attack on 'provincialism' is in *l'Architettura*, No. 33, and there is a further worthwhile editorial comment, from a less committed position, in *Architettura-Cantiere*, No. 18.

[†] The term is apt chiefly in describing the *intentions* of the Retreat; its stylistic sources go well beyond the wild Liberty of, say, d'Aronco, and draw clearly from the *Wagnerschule* in Vienna, and even from the Amsterdam school (particularly from de Klerk) and the Glasgow school. From these last two sources come, presumably, the preoccupation with brick, and a tendency to square off the profiles and silhouettes of projections and roof-slabs. Nevertheless, the term *Neoliberty* can stand—if only because it was coined by someone close, and sympathetic, to the movement.

NEOLIBERTY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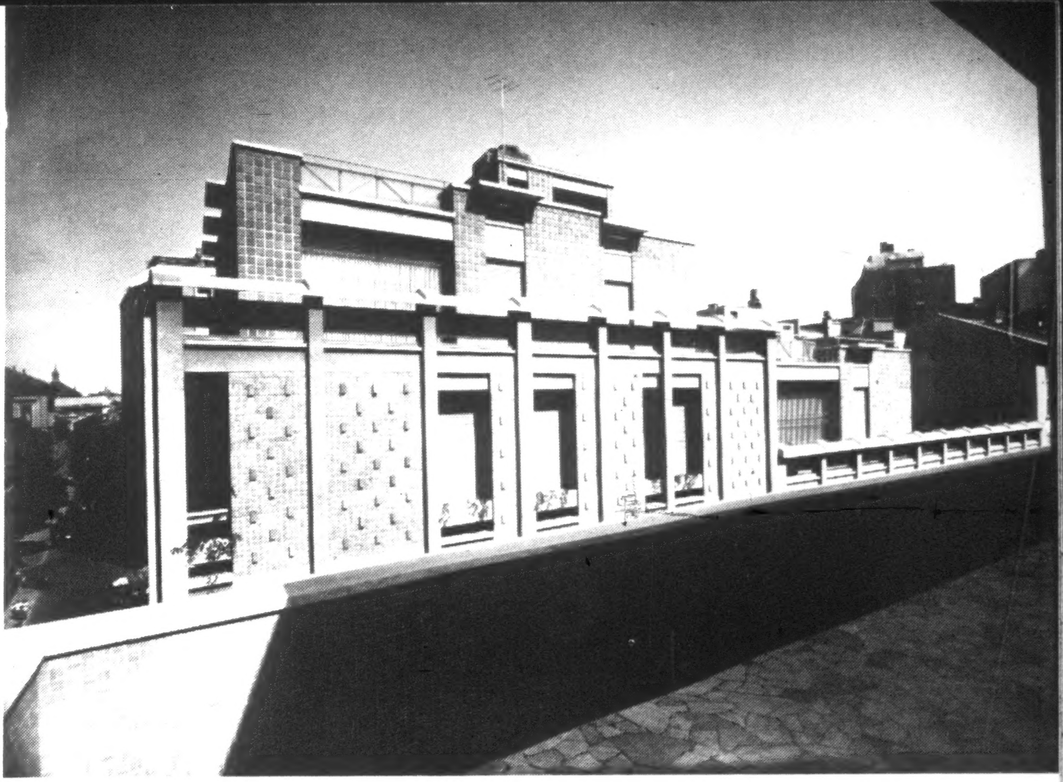
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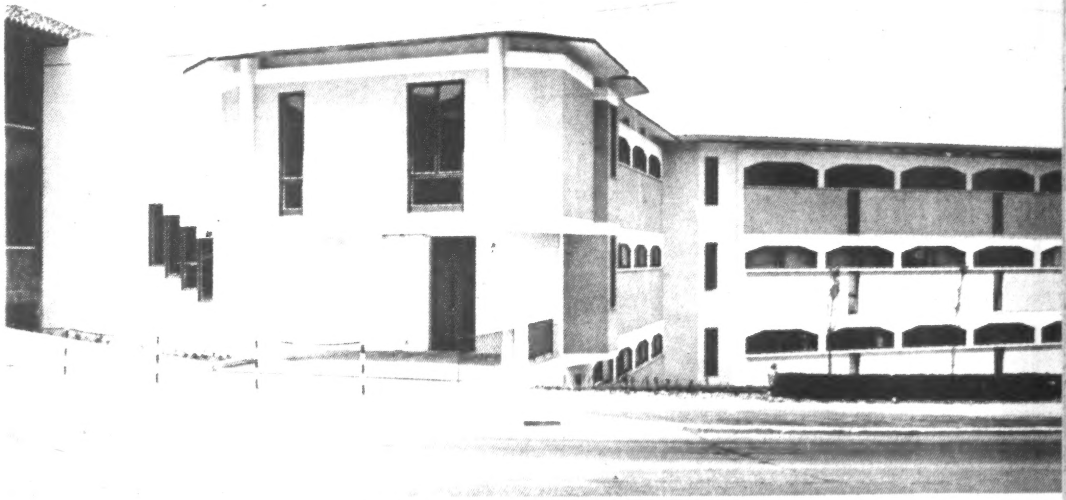
The extent to which the famous names of Milanese architecture have retreated can be judged by these two blocks by Figini and Pollini, one of 1949 in the via Broletto, 1, and the other in the via Circo, completed last year, 2.

3 and 4, the relationship of the retreat to historical precedents can be measured by comparing two illustrations, 5 and 6, of a late villa by Otto Wagner (as they appeared in Bruno Zevi's magazine l'Architettura) with two recent works in which Ernesto Rogers was involved, the Aquila offices in Zade, with their dummy pitched eaves concealing a flat roof behind, and the interior of the Italian Pavilion in Brussels, with its Wagnerian stained glass (and its stupendous outburst of Milanese Chandelierism).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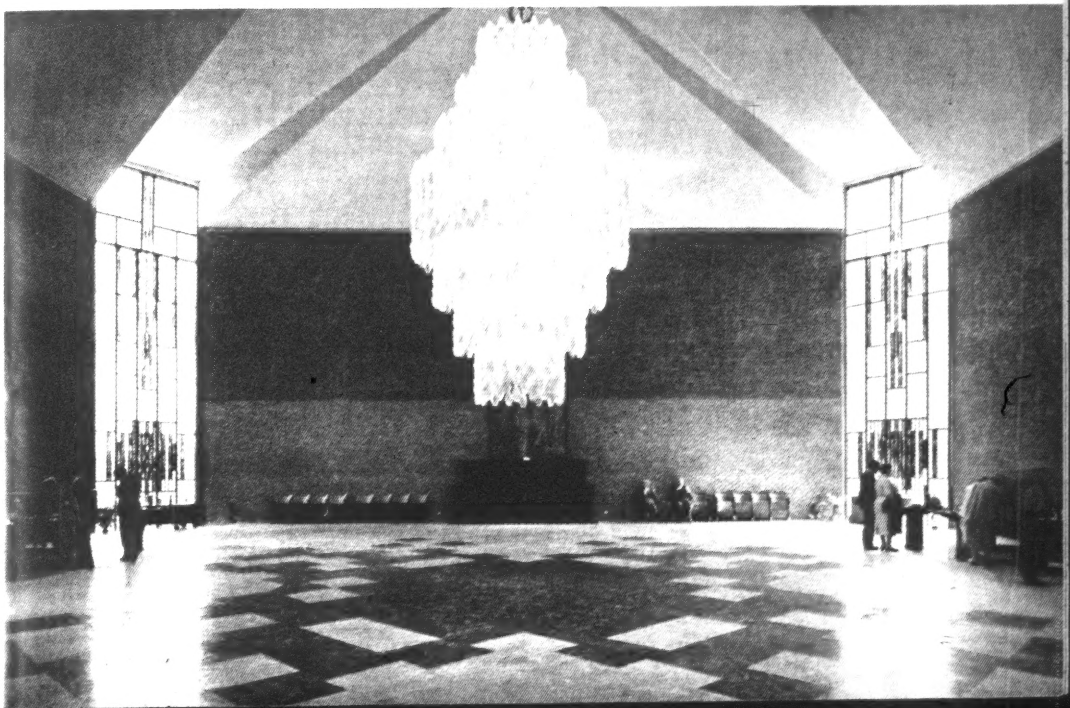
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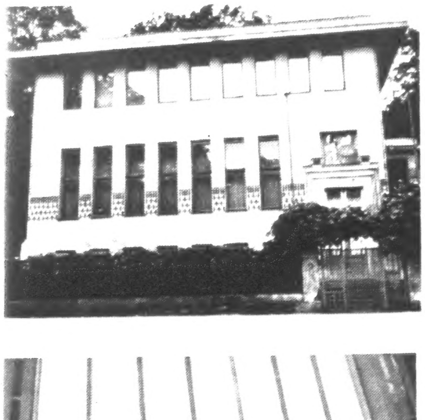
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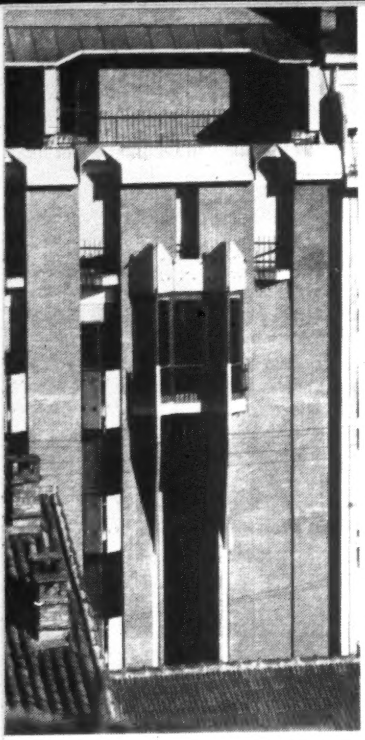

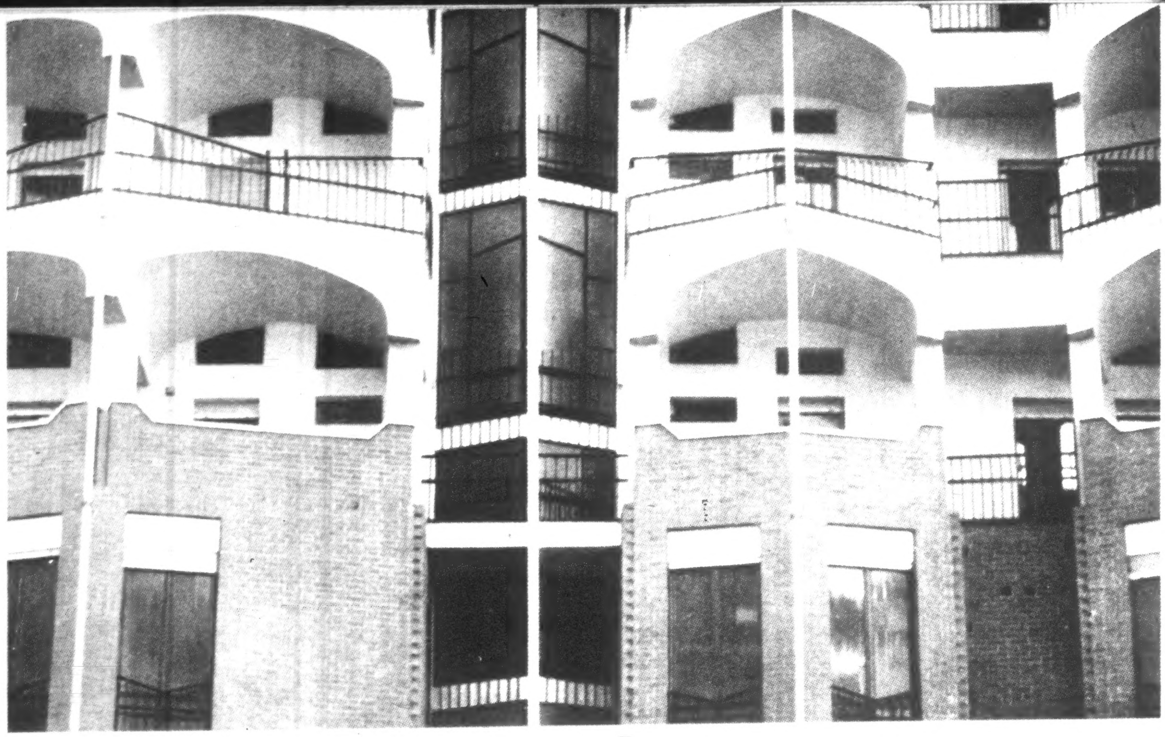

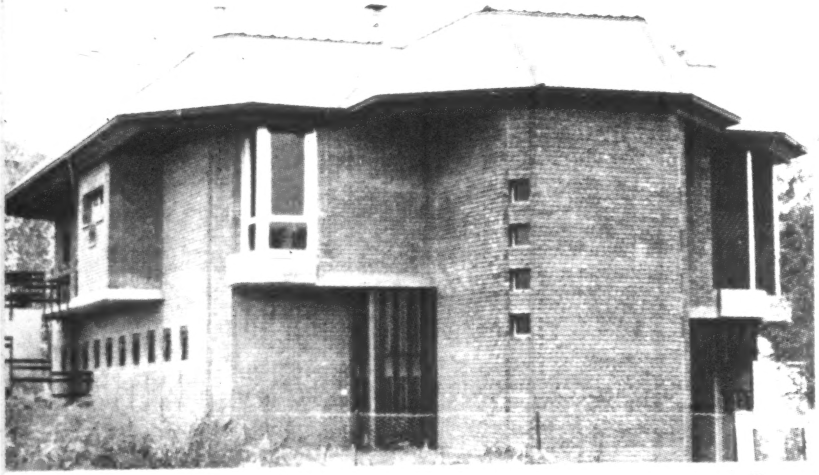

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NEOLIBERTY

In spite of the work of their elders, it is the young who have been credited with the creation of Neoliberty, as exemplified by their work in Turin, Milan and Novara.

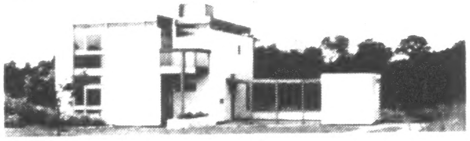
7 and 8, in Turin, the much-discussed Bottega d'Erasmo, by Roberto Gabetti and Aimaro d'Isola, emulates the hard, brisk plasticity of Mackintosh on the front, and something softer and more Viennese at the back.

9, at San Siro, outside Milan, the stable-block designed by Gae Aulenti seems to draw on the same late nineteenth-century sources as the earliest Le Corbusier (AR, March, 1959.)

10, near Novara, the block of duplex apartments by Gregotti, Meneghetti and Stoppino, shows unmistakable likenesses to Amsterdam-school work that appeared in Casabella *about the time of their completion.*

11, apparent 'Modern Historicism' is not restricted to Italy witness this house by David Gray at Lowestoft but a case can be made for drawing on some periods rather than others.

12, finally, Neoliberty *is not limited to the North of Italy; this detail is from a new block in Rome designed by the well-known* Cooperativa di Reggio d'Emilia.



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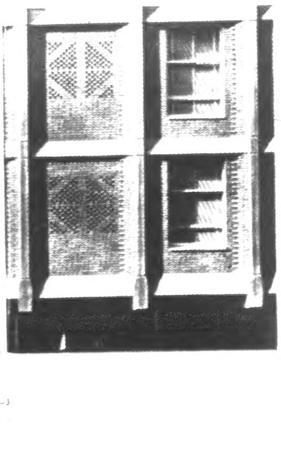

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of Italian aesthetes, spoke of *lo Stile Liberty* in a recent book (significantly entitled *Oscillazioni del Gusto*) as a style 'very near to us.'

Questioned about his attitude to both Neoliberty and its forerunner, Dorfles replied, in a letter from which the following are quotations, 'Today . . . my position is critical towards the excessive stylistic and decadent indulgences of certain Milanese and Torinese groups (including *some* of the experiments of Aulenti, BBPR, etc.) without, however, considering it purely a piece of provincialism as Zevi does.' This, from Dorfles, should warn us that, for Italians, Art Nouveau, or its local variants, has some continuing validity that it has lost elsewhere, and he goes on to make a statement that opens up a wider question of more than Italian relevance: 'But I am convinced still, that the future in architecture, as much as in design generally, lies more in a stylistic continuation of the Art Nouveau than in the Bauhaus-style.'

Now the problem of alternatives to the 'Bauhaus-style' is one that clearly exercises the minds of younger architects in many parts of the world, even if they have not, as in England, an explicit hostility to 'the white architecture of the Thirties.' There is a widespread feeling that much that was of value in the architecture and theory current before 1914 was lost or buried in over-hasty stylistic formulations in the early Twenties, and then forgotten during the Academic phase of the Thirties—hence that preoccupation of younger architects, to which Henry-Russell Hitchcock has drawn attention, with architectural questions that were current about the time they were born.

But, even if the men of the nineteen-twenties were wrong, and the men of the thirties were stubborn in error, that is no reason for going back to the beginning and starting all over again. Events have moved too fast, even in the Forties, for there to be any time for architecture to go back and re-puzzle its earlier problems. Over and above this, there are particular reasons for not going back to Art Nouveau.

The only conceivable justification for reviving anything in the arts is that the reviver finds himself culturally in a position analogous to that of the time he seeks to revive—a return to something like classical sophistication and affluence in Fourteenth-century Italy justifies the Renaissance architecture of the Fifteenth, the achievement of something like Athenian democratic sentiment in the early nineteenth justifies *le style neo-grec*. What undermines these justifications is the presence of factors that notably were not present in the styles revived—Christianity in Renaissance architecture, industrialization in *neo-grec*—and where these intrusive factors are too large to be overlooked, the justification must fail.

Now a justification of Neoliberty on the basis that Milanese *borghese* life is still what it was in 1900 is indeed implied in the polemics of Aldo Rossi. But it will not wash, because that life is not at all what it was at the beginning of the century, as Marinetti, with his fanatical automobilism, already recognized *in Milan* in 1909, Art Nouveau died of a cultural revolution that seems absolutely irreversible: the domestic revolution that began with electric cookers, vacuum cleaners, the telephone, the gramophone, and all those other mechanized aids to gracious living that are still invading the home, and have permanently altered the nature of domestic life and the meaning of domestic architecture.

Parallel with this domestic revolution there was a thorough overhaul of ideas and methods in the plastic arts generally, marked by such signs as the Foundation Manifesto of Futurism, the European discovery of Frank Lloyd Wright, Adolf Loos' *Ornament and Crime*, Hermann Muthesius's lecture to the Werkbund Congress of 1911, the achievement of fully Cubist painting, and so forth. These mark a watershed in the development of modern architecture; there is a certain consistency about everything that has happened since, and a schism from what happened before. And Art Nouveau, *lo Stile Liberty*, happened before.

It has become a convention, based chiefly on paying too much attention to what the masters of Art Nouveau claimed they were doing, to regard it as the first of the new styles, but the evidence of the eye affirms that it was the last of the old, in spite of the signs of transition that can be found in its best works. To revive it is thus to abdicate from the Twentieth Century—which may have purely personal attractions, like going to live on a desert island, but is no help to one's fellow-men, and architecture, for better or worse, concerns one's fellow-men.

On the other hand, these objections do not—yet—apply to the tendency to a *de Stijl* revival visible in Anglo-Saxon countries, reaching an extreme point, as far as England is concerned, in David Gray's recent house at Oulton Broad. Even insofar as this revives the forms of Rietveld's work, it does at least revive forms created since the watershed, still possessing a marginal significance. But if the present disquiets of architecture resolve themselves in a crisis of ideas—such as the Neolibertarians claim is already upon us—and raise another cultural watershed, then the Rietveld revival, as well, will cease to have any live significance for us, and Neoliberty will become a revival of—not a pre-mechanical culture—but the last pre-mechanical culture but one.

But all such justifications are marginal; the lasting significance of the revolution put in hand in 1907 is that it has given Western architecture the courage to look forward, not back, to stop reviving the forms of any sort of past, middle-class or otherwise. The performance of the revolutionaries may not have matched their promise, but the promise remains and is real. It is the promise of liberty, not *Liberty* or 'Neoliberty,' the promise of freedom from having to wear the discarded clothes of previous cultures, even if those previous cultures have the air of *tempi felici*. To want to put on those old clothes again is to be, in Marinetti's words describing Ruskin, like a man who has attained full physical maturity, yet wants to sleep in his cot again, to be suckled again by his decrepit nurse, in order to regain the nonchalance of his childhood. Even by the purely local standards of Milan and Turin, then, Neoliberty is infantile regression.

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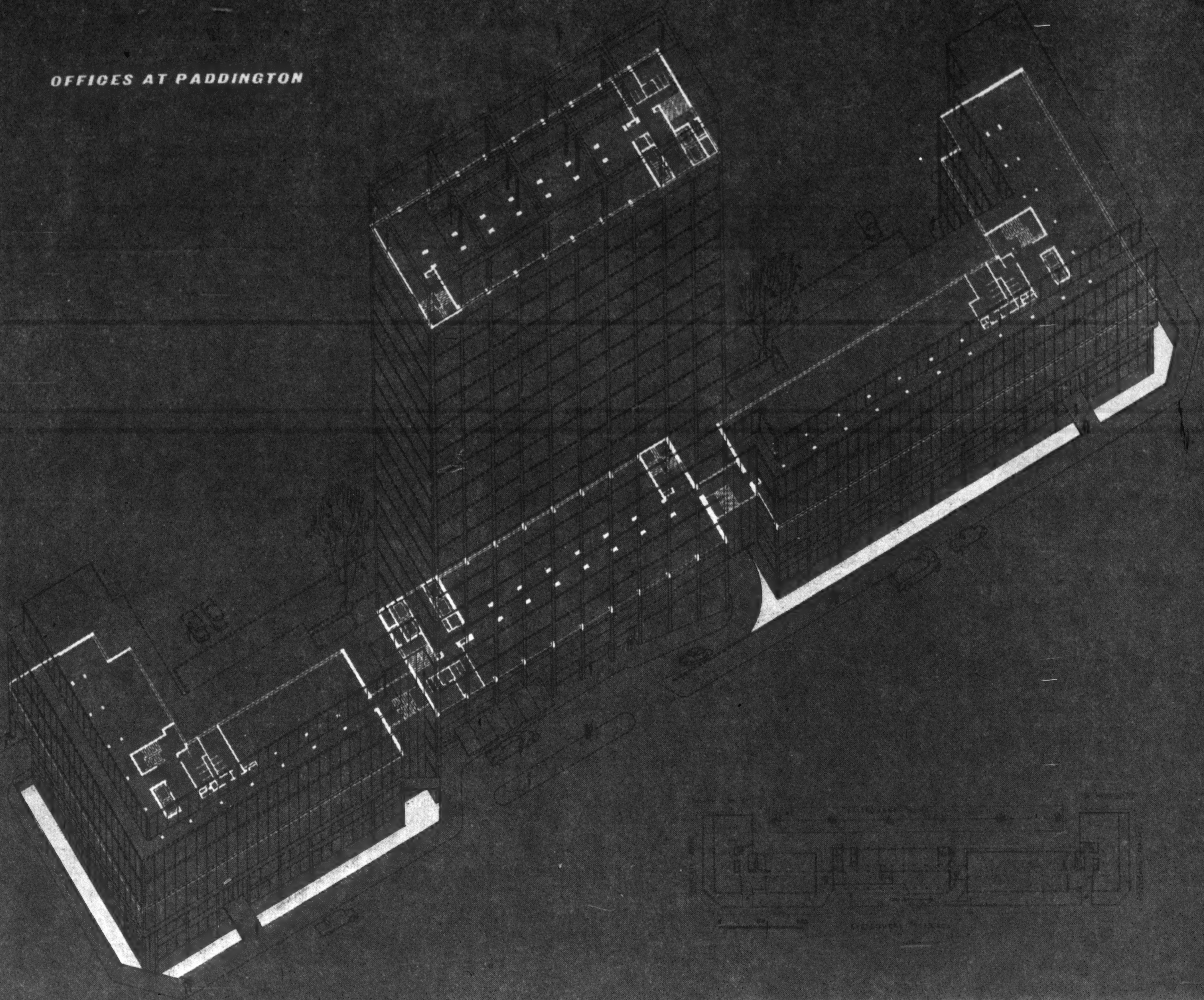

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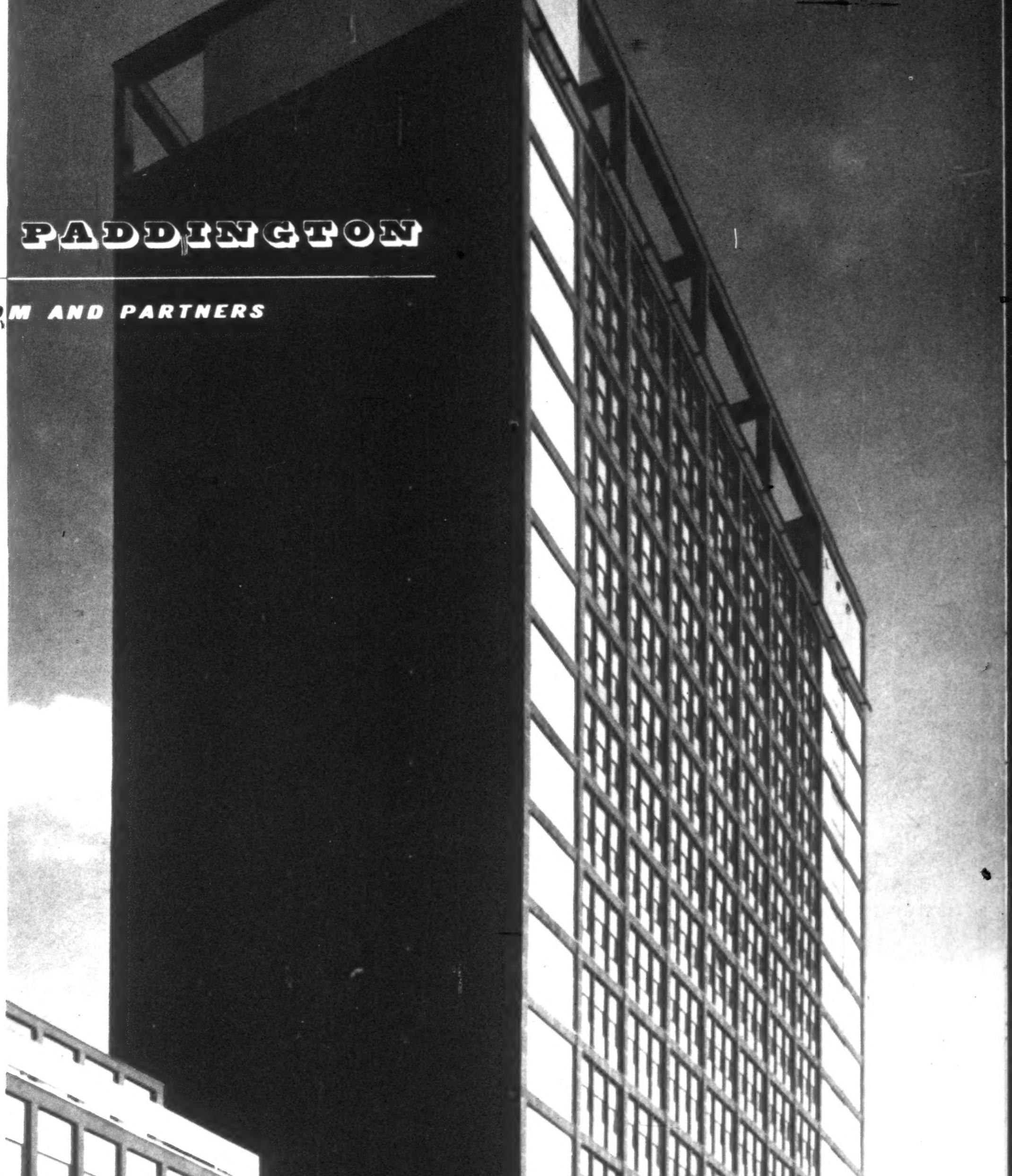
ARCHITECT | **C. H. ELSOM AND PARTNERS**



1, western side of the 18-storey tower. The frame is of precast concrete with exposed aggregate; the end wind-brace walls are faced with purple-brown bricks and the solid panels on the west front with ceramic mosaic. The panels below the windows are in blue glass mosaic cast integrally with the precast concrete spandrel panels. The windows are double hung aluminium, double glazed above the eighth floor.

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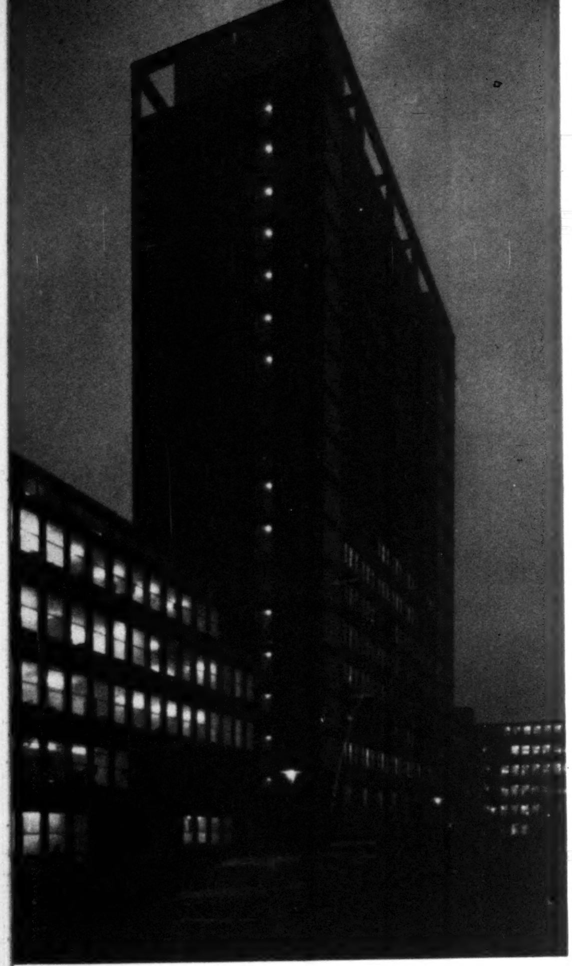

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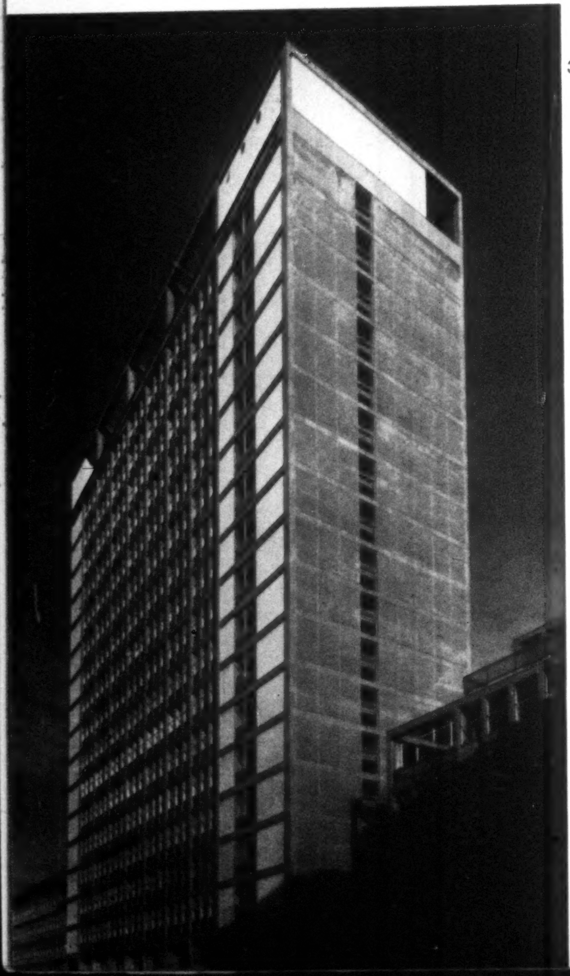

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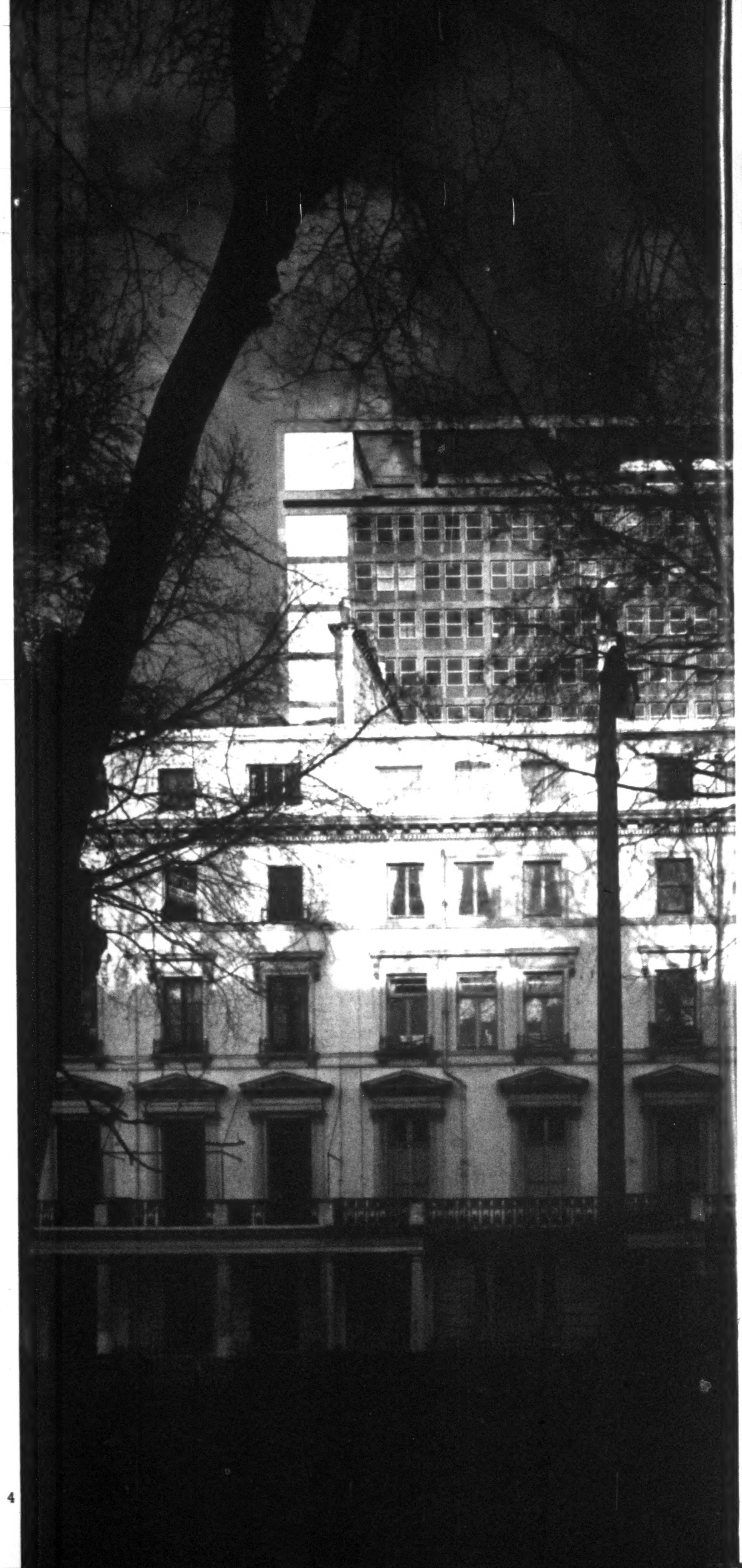

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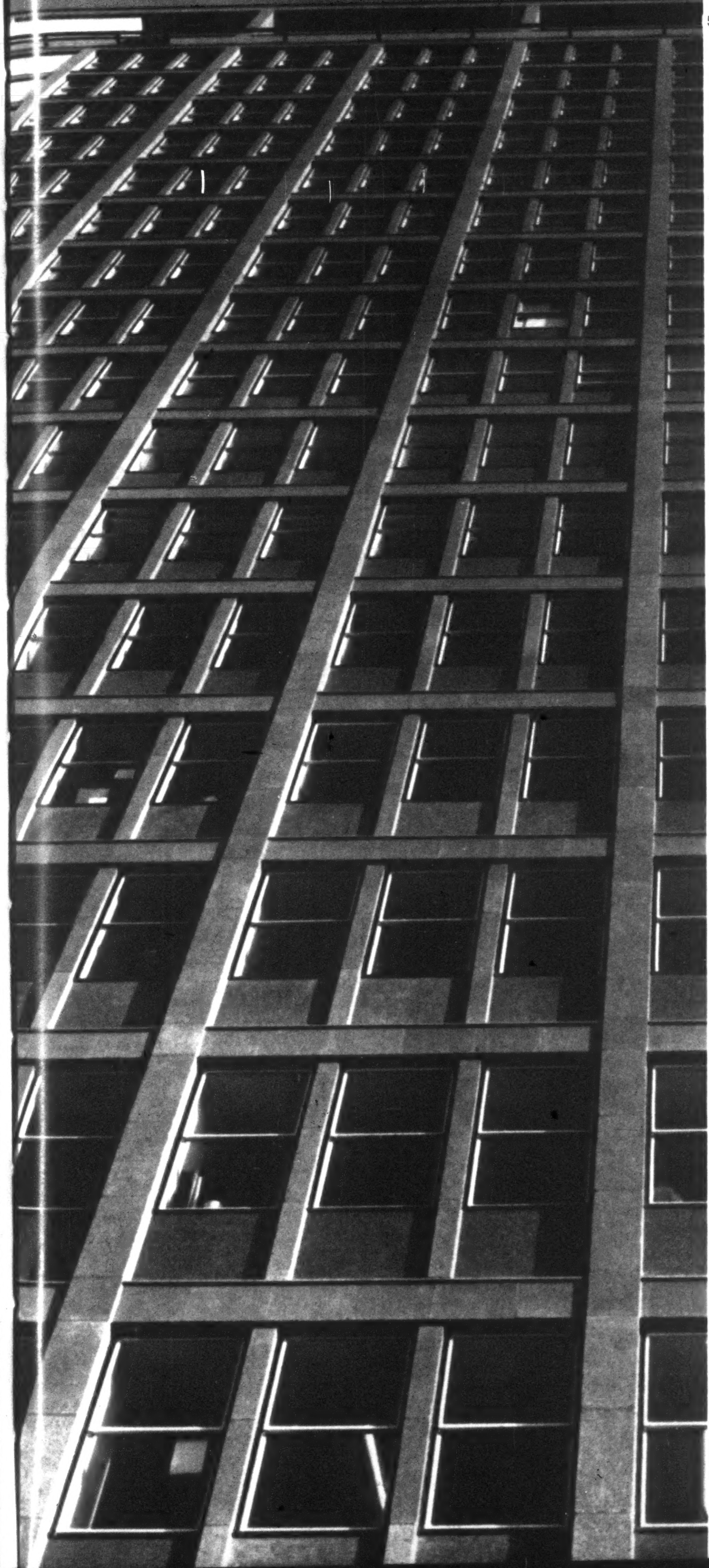

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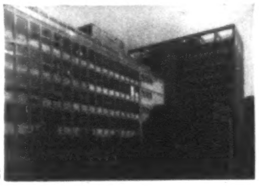

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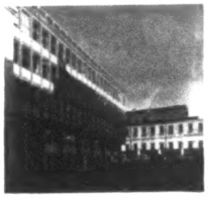

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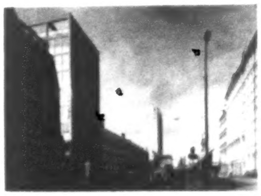

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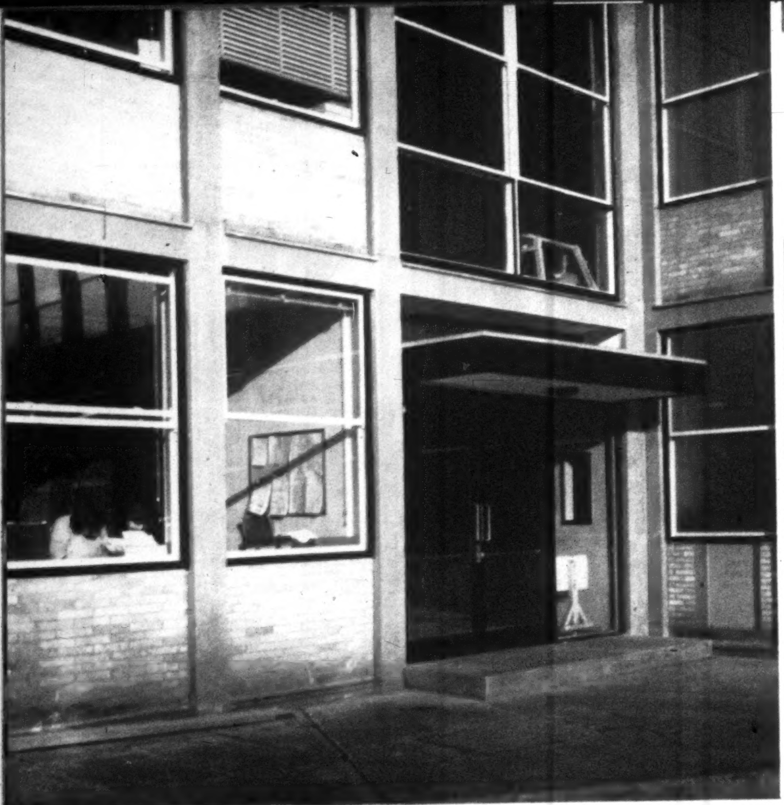
The site occupies over 1,000 ft. of the length of Eastbourne Terrace, London, W.2, but is only 120 ft. deep. Each building has been designed to have a separate identity, without losing the coherence of the street façade and the buildings are of varying sizes to give flexibility of letting. An 18-storey tower block on the northern half of the site is the focal point of the scheme. The narrowness of the site determined the siting of the block parallel to Eastbourne Terrace and light angles to the Mews properties at the rear controlled its length. A smaller tower block, nine storeys high, occupies the southern end of the site. The buildings are of constant depth and are generally planned on a module of 5 ft. longitudinally. Normal foundations were used on the southern half of the site, with bored cast in-situ piles on the northern part. Reinforced concrete construction was used in preference to steel frame, as being more economical and just as fast. The small longitudinal module made it possible in the lower blocks to eliminate internally projecting columns between the windows by using the mullions as load-bearing members. Visible beams at the outer edges of the floor slabs are also eliminated, and the long unbroken wall surfaces thus produced give clear office spaces. In the two taller blocks, the greater difference between the loads carried on the upper and lower floors made it necessary to use normal structural columns. These are expressed externally and run without a break from ground to roof level. Flank walls on the lower blocks are framed, with a cavity wall infilling of brick and insulating blocks. Flank walls on the 18-storey block are of solid reinforced concrete to provide wind bracing. Infilling panels below windows are generally brick-faced on the lower blocks and mosaic faced precast concrete on the taller blocks.

9

Each building is supplied with central heating and domestic hot water from one of two boiler-houses, which are sited in the basement of the two tower blocks, so that the flues can be taken above the highest roofs. There are two complete heating and hot-water systems each supplying all the building on half the site. Heating is by means of

2. night shot of the west elevation.
3. the tower from the south west.
4. the west elevation seen above the houses of Westbourne Terrace.
5. part of the west façade.
6. north west elevation of the low tower and the longest of the low blocks, which have an exposed aggregate frame and 2in. yellow facing bricks.
7. the south elevation of one of the short low blocks. Finishes up to first floor level are of green semi-glazed ceramic mosaic on the columns and white glass mosaic on the spandrel panels.
8. view of the street looking north. The building in the bottom left hand corner is to be replaced by a two storey block.
9. part of the north elevation of the low tower. The patterned wall is finished in glazed Belgian tiles in blue, white and black and covers the intersection of the scissors staircases.



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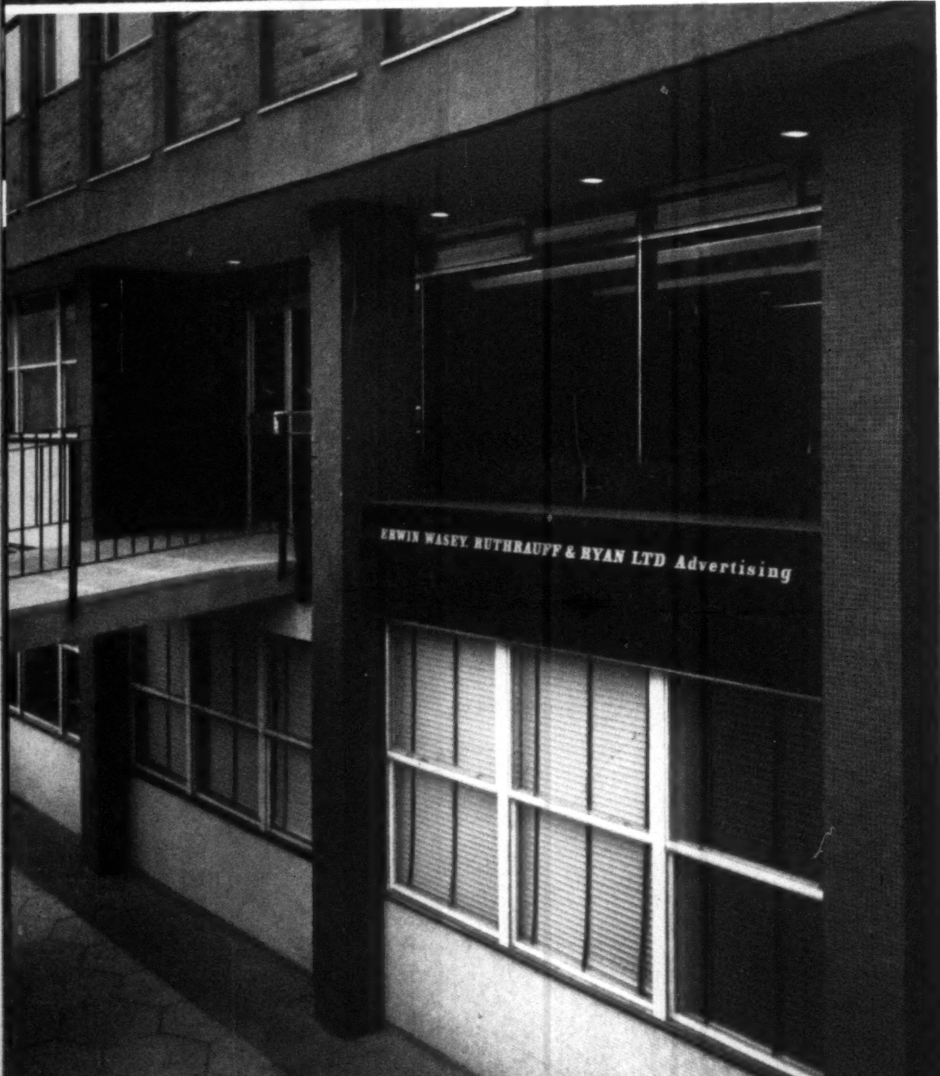
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10. detail of one of the rear entrances from the car park.
11. detail of entrance screen and door.
12. entrance to one of the shorter low blocks, showing the bridge crossing the paved low-level court.
13. connecting link and escape staircase between the tower and the northernmost low block, with the car ramp passing below.
14. view of the terrazzo-finished three flight staircase at the centre of the longest low block.
15. general view of the entrance.
16. interior view of the entrance to one of the low blocks, with a suspended ceiling of fibrous plaster and terrazzo floor.

OFFICES AT PADDINGTON

pressurized medium temperature hot water which is circulated through specially developed continuous convection heaters under the window cills. Hot water is supplied from storage calorifiers in the boiler-house, with separate boilers for summer use. All boilers are oil-fired and underground oil storage tanks are provided in the car-parking area at the rear of the buildings. Lifts are provided in all buildings and in the 18-storey block are driven by gearless motors and are capable of a speed of 700 ft. per minute.

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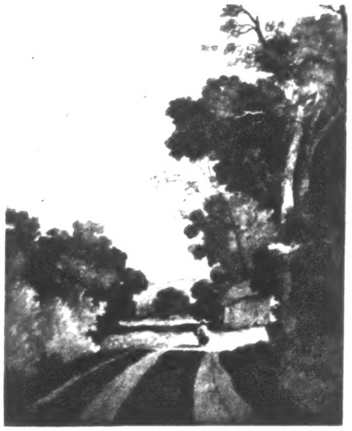
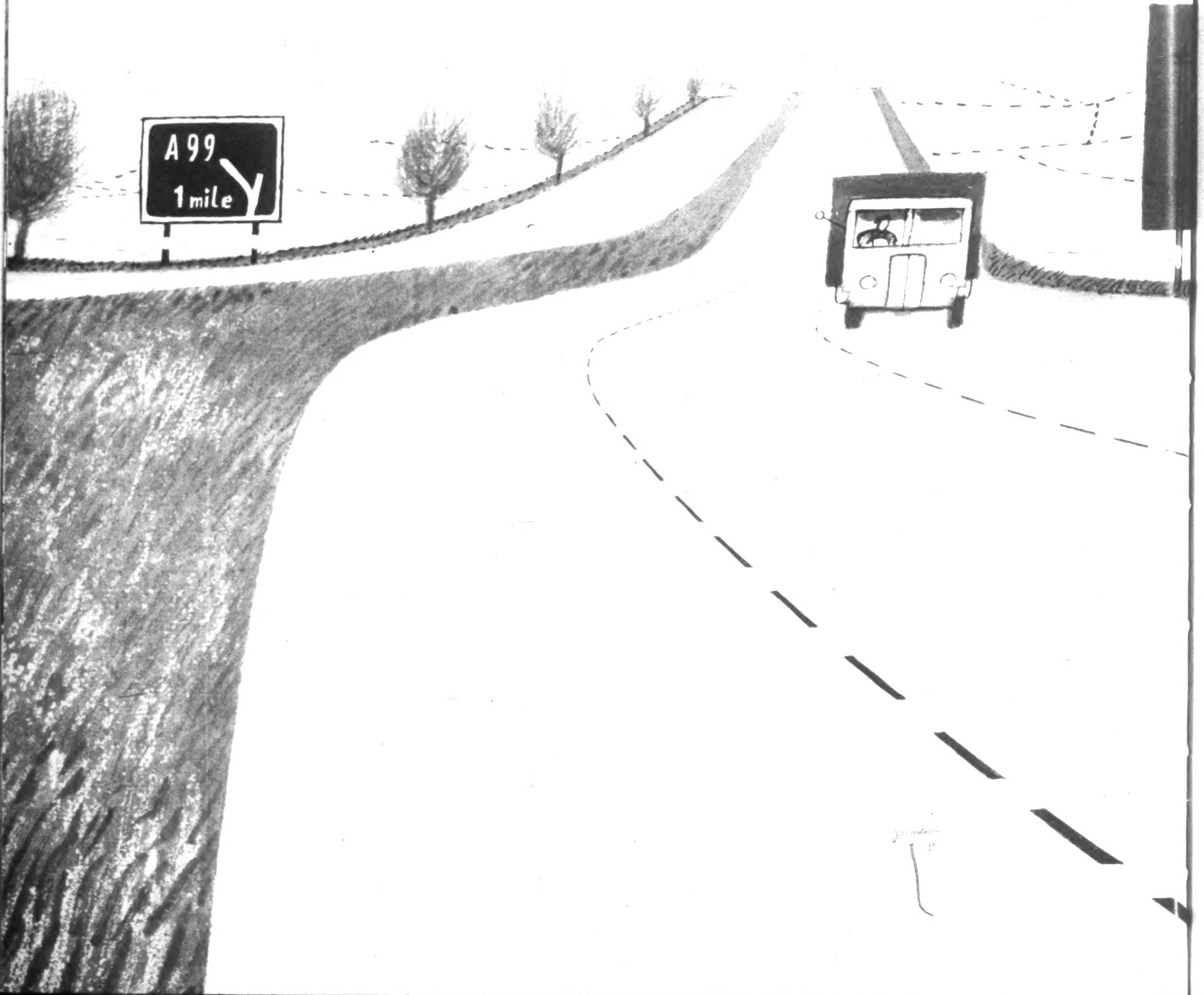
assistant in charge:
F. P. Softly
assistants:
J. L. Smith and A. Artur

John Crome's watercolour of *The Shadowed Road*, right, shows us a pattern of road and landscape in the horse-drawn ages, adapted to the needs of its traffic, integrated with the surrounding scenery, interesting as an unfolding experience to the traveller. The average landscape of the average motor-road in Britain, below, is none of these things, except possibly the first, but even that is doubtful, since the boredom of its endless road-ribbon and its undesigned surroundings can adversely affect a driver's attentiveness. In the article which begins opposite, Raymond Spurrier emphasizes the need for motorways to be fully thought-out visual conceptions, comparable in quality to the horse-drawn road, but re-phrased on the scale of high-speed travel.





Raymond Spurrier

CAUTION - ROAD WORKS

At last money is being spent on meeting the need, which has been evident for a long time, for more, bigger and better roads. Helicopters are hovering over hundreds of bulldozers and scrapers as they tear great wounds across the countryside for new motorways that will make as great an impact on the landscape as on traffic movement. This article is concerned with the aesthetics of motorways; it is concerned that 'what is given to man the motorist is not taken away from man the philosopher.'* The engineers can confidently be left to produce improved traffic arteries; but will these be better roads? Will they be roads that 'add to the exhilaration of daily life;' will they be such that a long journey upon them will be a 'continuous and positive delight?'

It might almost be stated as a maxim that a road which is not visually satisfying is inefficient; the bored or irritated driver becomes a lethal driver and this alone should be sufficient justification for spending time, thought, and even money on visual design.

But how? What is the nature of the problem?

Firstly, it consists in realizing that whilst mathematics may express beauty, two ribbons of tarmac—however alluring the curves—are not necessarily beautiful in themselves; secondly—that 'roads beautification' is not some sort of treatment that you spray on after the engineering work has been done. The motorway—112 feet wide—will be a dominant element in the landscape and the problem is therefore one of landscape design—or more accurately redesign: how to integrate the road with its surroundings; to absorb a standard linear product into a variety of spatial settings; to reconcile a conveyer belt

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*** quotations are from the very important Rees Jeffreys Triennial lecture 'Motorways—Their Landscaping, Design and Appearance' given by Mr. G. A. Jellicoe to the Town Planning Institute on the 9th October, 1958.**

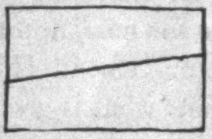
with a humanized countryside; to relate large-scale proposals to a small-scale country; and conversely: to organize small-scale views for high-speed travel.

These principles are—or should be—well enough known. In 1943 the Ministry of War Transport's circular 575 implied them, and pointed out the need 'not merely to safeguard existing amenities, but to add to them'. In 1954 the then Minister of Transport, Mr. Lennox-Boyd, with an apprehensive glance at the dwindling amount of unspoilt land in Britain, commended a joint committee report which set out details for *The Landscape Treatment of Roads*. We have known how to apply the principles since the Mickleham by-pass was built in 1936-37. And yet Mr. Jellicoe was hard put to it to find enough examples of good road design in this country to illustrate his paper. He cast disturbing doubts about the future despite our particular native ability in landscape design.

It is this national tradition—the technique of creating a series of unfolding views, so firmly established by the eighteenth century Picturesque Movement, that should so obviously be applied to motorway design. Only the sequence of views must now be geared to upwards of a mile a minute appreciation by the motorist as well as being designed in relation to the landscape as a whole.

Here are some basic ideas for design and to begin with the obvious: landscape exists. Good landscape like ours, precious and irreplaceable, is all of a piece, a unity with a rhythmic sense of flow. An alien object like a motorway, thoughtlessly introduced, will impede that flow with its own strident lines of force. It will disrupt the unity. It will divide the landscape as positively as a line drawn across an empty page, converting one space into two separate spaces, *1.* Twin carriageways, boundary fences, and centre strip planting multiply the parallel lines to reinforce the rift, *2.* So if a road is to be absorbed at all into its surroundings the two half-landscapes must be reunited, *3.* There are several ways of setting about the task.

1



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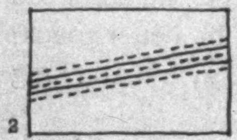
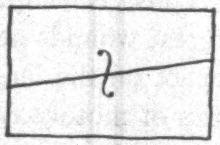


If our field pattern is enlisted to form irregular boundaries the relentless parallelism will be reduced, *4.* The road will then pass through spaces defined by existing trees and hedgerows—a link with what lies beyond. This method is used with great effect along the Connecticut Turnpike, *5.* Here existing planting is augmented along and within the highway limits to screen other development from the road and the road from it; private housing is considered to be as much in need of screening as industry.

3



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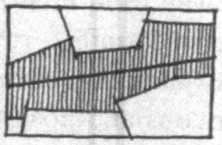
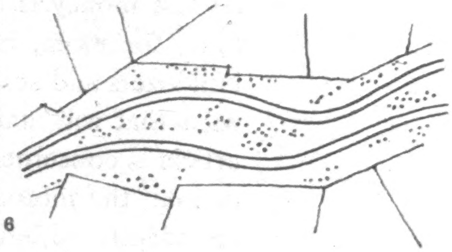


The better solution to the dichotomous landscape is to avoid splitting it before you start. If each carriageway is allowed to run its separate course, *6* and *7,* the road



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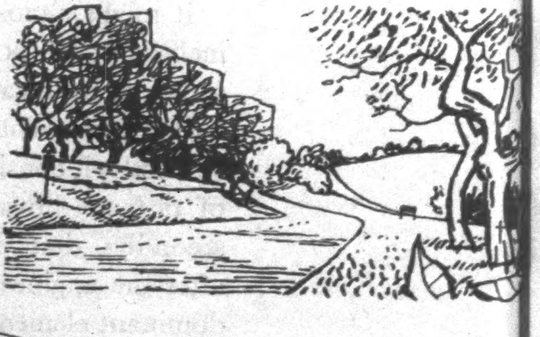
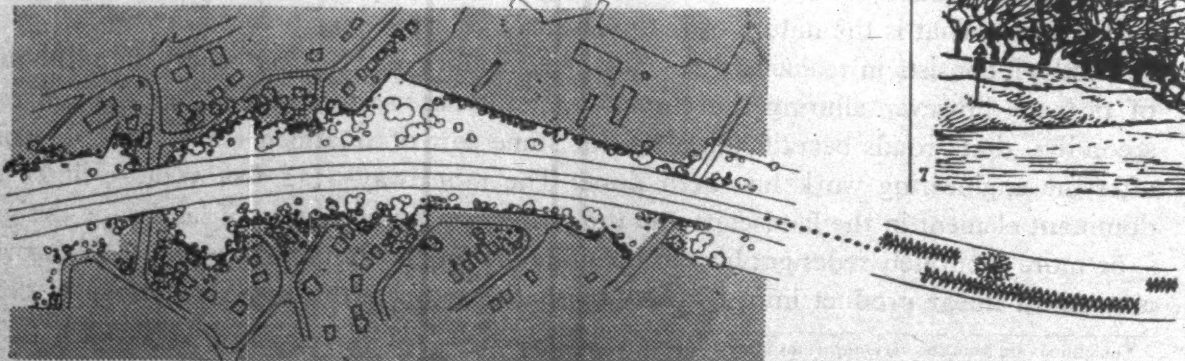


7

7, the Shadowed Road—modern style. Divided carriageways welded together with the landscape by planting and landform, and by light, shade, and texture.

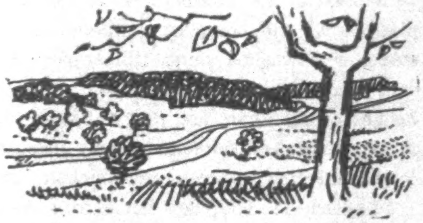
5, the American parkway becomes a self-contained landscape. In this case landscape design by A. Carl Stelling commenced at the beginning of the highway design stage. Note how even the planting on the centre strip is varied to create miniature modulations from the parallel.



5 CONNECTICUT TURNPIKE

begins to embed itself in the countryside and the landscape to flow across the road. There are good examples along the Mickleham by-pass and the A40 into Oxford. Each track hugs the contours; cut and fill is reduced on cross slopes; parallelism is practically eliminated and so is headlight dazzle. Although the overall highway limits are greater the apparent width is less since the second track is virtually out of sight most of the time. The central reservation now becomes, and should be treated as part of the landscape, not part of the road. This type of fitted highway is ideal for our intimate countryside.

Both these techniques need extra land however—a luxury which the new motorways are unlikely to enjoy. Paradoxically, those continental countries with land to spare produce seemly results by other means, *8*. The secret here is the absence of visual boundaries which would accentuate the road line. Other peoples land—which is free to look at—becomes part of a scene that sweeps across the road unobstructed. The curving carriageways do not obtrude because other more prominent marks in the landscape draw the eye. This effect will only work in certain types of country: through marginal land or in areas of 'open field' cultivation.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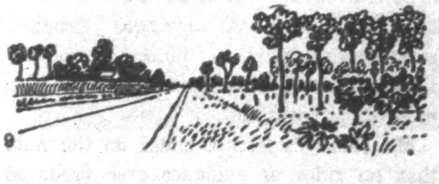
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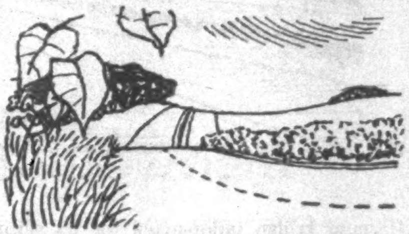
The Belgian road above, *9*, in a different type of setting borrows trees from outside the highway limits to help counteract a mechanical ruled parallelism. Set in rows at right angles to the line of advance, the trees recede like the borders on a stage to give a sense of depth and space penetration in a flat landscape. Divisionism is disguised.

Where, however, it cannot be overcome by any of these methods the division must be cultivated as a virtue. If the insistent line is accentuated by the erection of a high visual barrier (trees) along one side of the road only, space will be reorganized. The road will run along the edge of the space it defines, like a field path at the edge of a wood and the eye will be deflected outward to the view, *10*. If the road can be made to run alongside a wood, so much the better. Any centre-strip hedge must be kept low enough to see over and it will be read as one with the background from the returning carriageway, *11*. When a central reservation can be contrived wide enough to take a really effective tree screen, both carriageways, insulated from each other, will enjoy similar effects. These effects can be switched for variety and according to the terrain so that the open view is first one side, then the other. For a change the view can be blotted out altogether by planting on both sides. But beware of avenues. A drive through a wood is usually considered to be picturesque and desirable; a long trip through one of those *routes forestières* favoured by the Michelin maps soon proves how monotonous and claustrophobic this can become. Judicious thinning at the edges of the road and on a wide centre strip can however give more of the sensations of a stroll through woods where you are among the trees, *12*, not hemmed in by an arboreal corridor. Entry into the wood and emergence into open country again should be arranged gently for motoring reasons as much as for aesthetic ones.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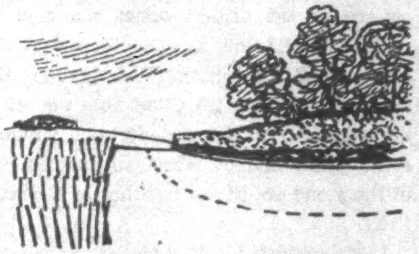
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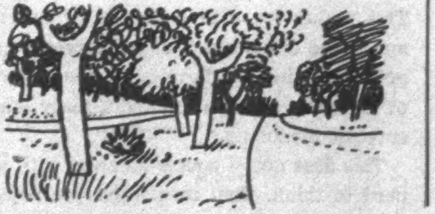
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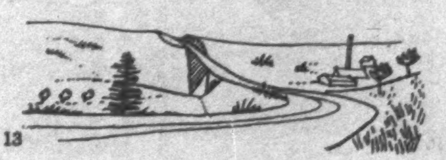
These then are a handful of ways in which the road as a linear concept can be made part of a three-dimensional landscape. All sorts of permutations and variations are possible providing the transitions are geared to high speed motoring. All are simple—perhaps obvious, but all need the artist's eye to assess the capabilities of the landscape and to exploit them to effect. These effects do not need to be startlingly beautiful all the time but they should always be competent, they should unfold naturally, and they should be in scale.

The Enclosure Acts gave us for the most part a cosy, friendly landscape. The motorway is anything but cosy in conception. Planting and earth moving must therefore be on a scale compatible with the road itself and the speeds attainable. Little ornamental trees suitable for garden suburb layouts will not do. Road curves designed for 70 m.p.h. driving need to be echoed with 70 m.p.h. views. Luckily perhaps, there is a tendency for the agricultural pattern to become larger so that tomorrow's landscape may well be more in harmony with tomorrow's roads. But whatever may be the total pattern, it is important in road design to give a sense of the landscape through which one is passing. The driver should be as unconscious of the road itself as he is of what is going on beneath the bonnet. When either mechanism or road begin to obtrude, something has gone wrong.

The point at which the basic design of road and setting becomes one of road and adjuncts is not clear cut since the view is composed of everything that is visible. Details are therefore as important as the broad conception; they must be part of it. Earthworks belonging to the road should look as if they belong to the landscape by merging with the predominant forms.

In turning over pictures of German autobahnen, so competent in detail, it comes almost as a relief to find a piece of roadscape that doesn't work, *13*—an example of how not to do it (the only one in this article). Embankment and cutting are obviously artificial and clumsy; more sympathetic bulldozing and careful planting could have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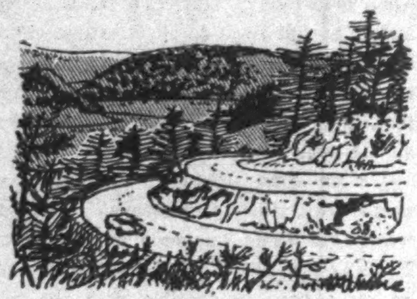
improved the appearance and redeemed an already bleak piece of country.

Intractable terrain causes engineers to think and the result below, ***14,*** is a road that clearly belongs to its setting. Vertical separation of the tracks makes each one invisible from the other. This is probably the best method of assimilating large and complicated junctions too. A roundabout or a clover leaf crossing is a very unsatisfactory landscape feature and the parts are best treated as ordinary lengths of road. The more they are disguised the less likelihood there is of confusion for the navigating driver.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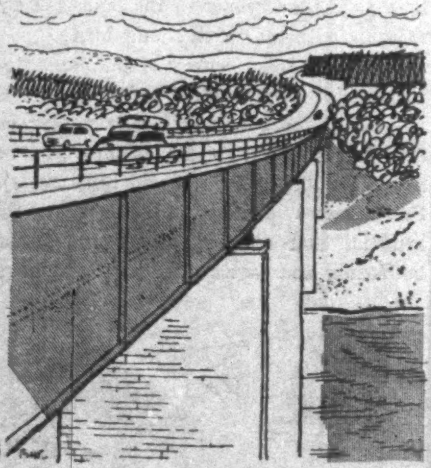
Bridges, from an engineering point of view are problems of span, loading, and construction. Gaps may be spanned in a number of ways. The sides can be delicately laced together by a suspension bridge; they can be held apart by the sheer mass of an arch or a slim structure can wedge itself neatly in place. A bridge can leap across gracefully or go galumphing over leaving great clumsy imprints. These are visual images of course but a bridge is a visual event in the road's progression—a frequent event too. The London-Yorkshire Motorway will have 131 bridges in 55 miles. Visually, each of these may perform a different function; a standard solution may not be applicable.

Below, ***15,*** is a superb example of a German bridge tailor-made for its setting. Originally flat, it has been rebuilt to a dished profile so that the road could cross the river and proceed up the hill in one continuous sweep. This logical assembly of wafer thin stone piers, uncluttered girders, unfussy railings makes a bold gesture almost thrown away in its simplicity. Note too the linear pattern of the distant woods changing to bushy-topped forms as a contrast with the precision of the bridge. (Well perhaps the trees were already there but note the effect nevertheless.) This represents road building in the grand manner where all the elements of the scene are bound together by the road itself.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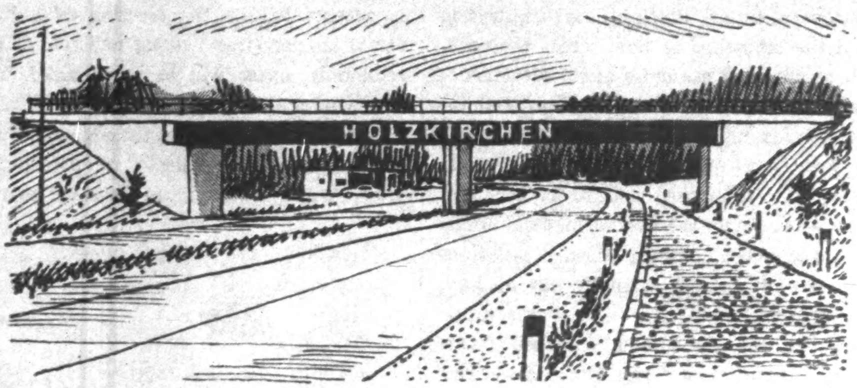


16

Less breathtaking though just as competent is ***16,*** a minor bridge across an autobahn. Designed for its own position it forms part of a scene remarkable for its unity. From the massed trees right down to the last detail there is a look of inevitability about the composition. See how the arches punctuate the progression without interrupting the continuity; they frame a view (which includes an unobtrusive petrol station) with a promise of a new scene beyond.

And yet there is the feeling that it could go on just like that for hundreds of miles. It probably does; so do continental landscapes. You could build a road from the Urals to the Pyrenees across the Great Lowland Plain using the same scenic ideas all the way. But those ideas will not do for us. In the 110 miles between London and Birmingham there are six different geological formations, each generating its own particular type of scenery and building style. This makes for a high density of interest and if the differences can be respected and not ironed into uniformity by the impress of the road, we have to hand a ready made cure for monotony.

This does not of course do away with the need to think. That memorable journey in 'Outrage' from Southampton to Carlisle demonstrated how easy it is to iron out differences with standard, off-the-peg solutions.

The road itself is a standard ribbon but it can be stitched into the scenery using the vernacular of the district. The most obvious place is at the boundaries where natural stone, whitewashed stone, timber post and rail, white painted timber, iron railings, hedges of all kinds are just a few of the local variations available without recourse to the universal concrete and chicken wire.

In addition to boundary fences all sorts of other roadside details subject to the design process can be enlisted as aids to local absorption. Since details usually form the foreground to the view, all the trouble taken over landscaping can be ruined in a single rude gesture by a badly placed sign, or ill designed trim. The great crime and the mark of the amateur is over-design. Vernacular, traditional, or good foreign precedents exist for most roadside objects so it is only a question of taking trouble to adapt them.

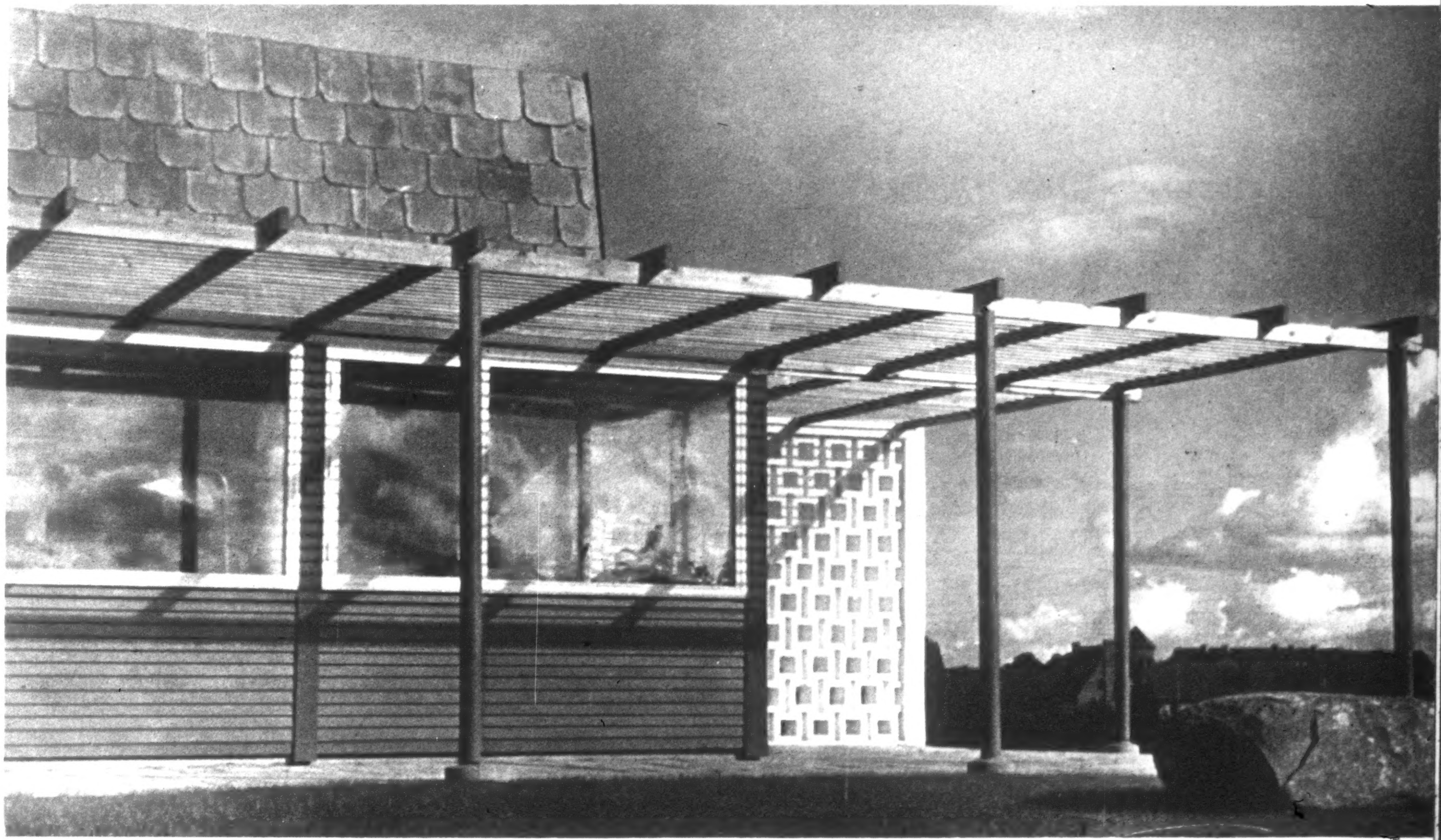
Just as the best details are those with least fuss so the best roads are those with least accessories. A motorway designed comprehensively at the outset should not need all the unplanned extras that clutter most of our roads now.

Mr. Jellicoe's lecture ended on the note that no rules or guidance ever produced a work of art. Time and skill have though and at least the Ministry of Transport and its advisers have had plenty of time to make a comprehensive design for the London-Yorkshire Motorway. They say in a handout that the six and a half years 'was quite valuable, as it afforded ample opportunity for the contemplation and solution of the novel problems involved.' So perhaps after all Mr. Jellicoe's doubts and our fears about the future are unjustified.

These eleven houses in the country round Copenhagen are all by the same architects, and although they vary in size and purpose they share a similar construction of lightweight concrete blocks, timber and brick. They have wide sun terraces and most have clerestory windows to give sunshine to bedrooms facing north.

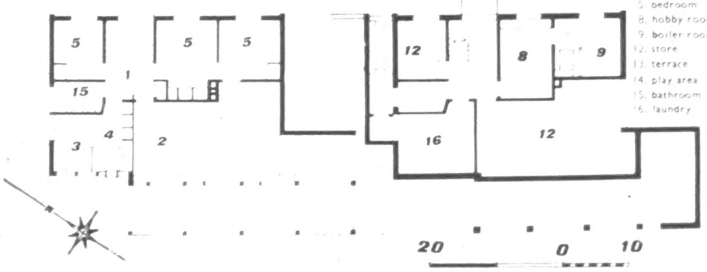
ELEVEN DANISH HOUSES

ARCHITECTS | **HENRIK IVERSON AND HARALD PLUM**



1

1, at Ronnebaervej, Holte

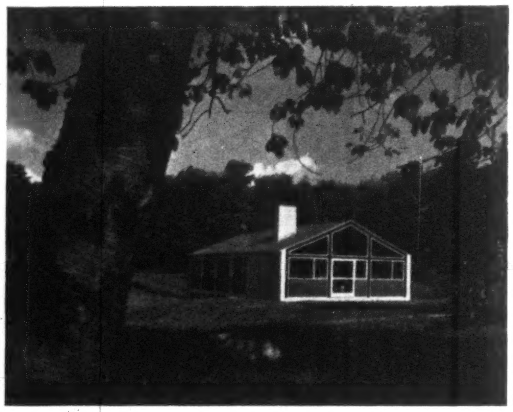


key to plans
1. hall
2. living room
3. kitchen
4. dining room
5. bedroom
8. hobby room
9. boiler room
12. store
13. terrace
14. play area
15. bathroom
16. laundry

A house set on a hillside with all living-rooms overlooking the garden. 1 the pergola-covered terrace outside the living-room with pierced screen wall behind. The concrete blocks are painted white and there are panels of dark boarding below the windows. 2 the south side of the house.

2

ELEVEN DANISH HOUSES



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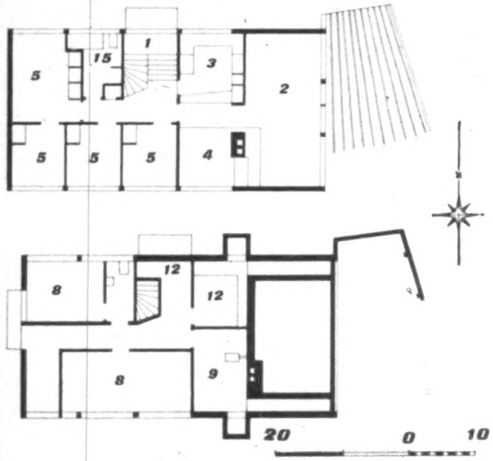
2, at Vinagervej 5, Gentofte

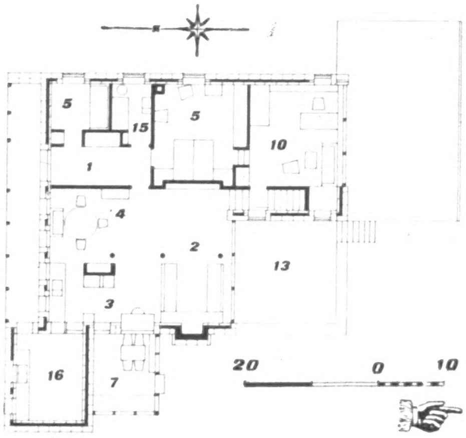


Designed for a married couple who are both doctors, this house stands close to a major road and has a screened courtyard to keep out the noise of traffic. 3, from the garden the lower floor of the house is completely hidden. The big windows of the living-room are carried right up to the roofline.

key to plans

1, hall
2, living room
3, kitchen
4, dining room
5, bedroom
6, studio
7, sun room
8, hobby room
9, boiler room
10, study
11, garage
12, store
13, terrace
14, play area
15, bathroom
16, laundry

3, at Kong Valdemarsvej Holte



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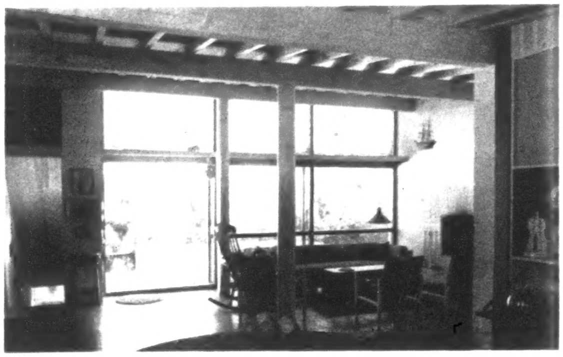
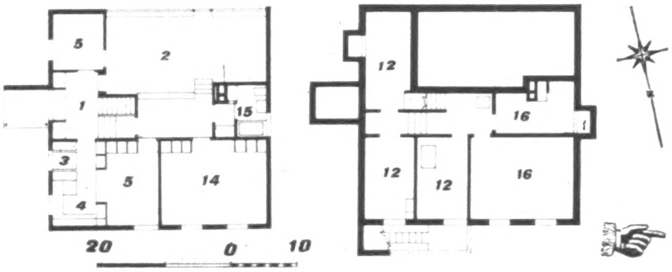


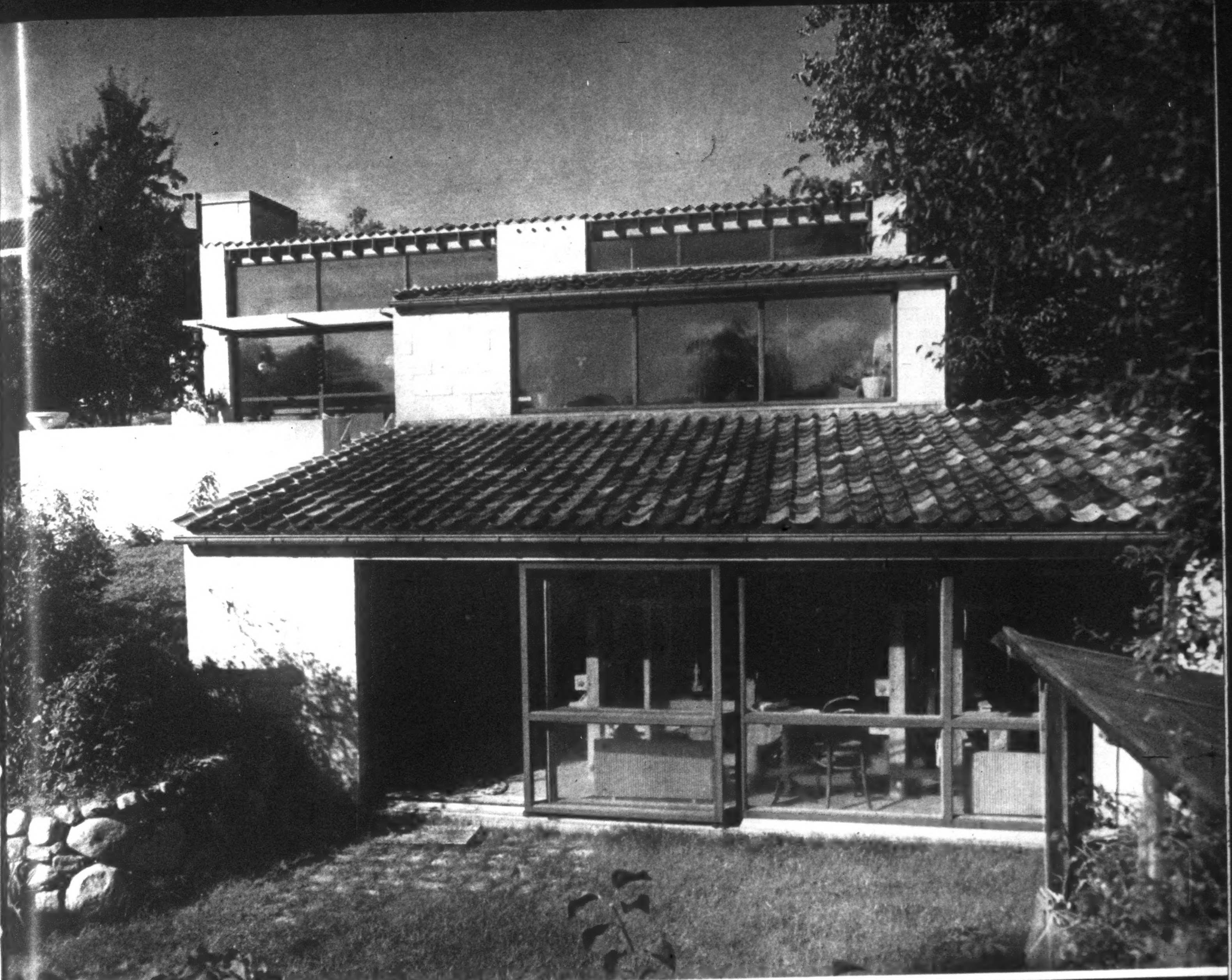
The study, living-room, dining-room and kitchen of this large house all have direct connection but may be shut off from each other by sliding doors. 4, the living-room looking towards the terrace with the stairs down to the basement on the left. 5, opposite, the garden front, with the basement workroom, terrace and study above and bedroom windows beyond.

5
→
6

4, at Solosevej 12, Gentofte



A very simple house on a square plan. 6, opposite, shows the living-room opening on to the terrace, with the clerestory windows lighting the bedroom and playroom.



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5, at Lyngbakkevej, Holte

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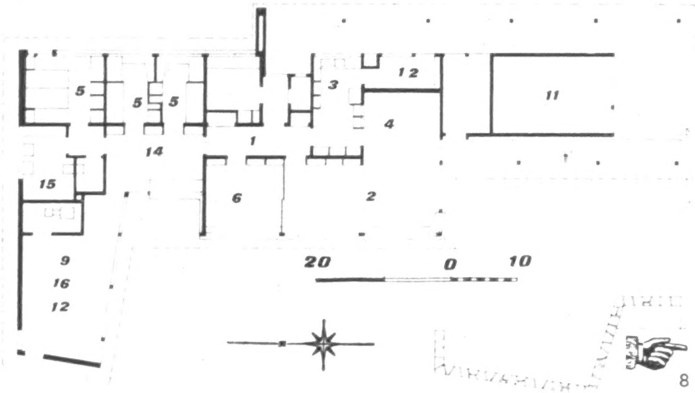
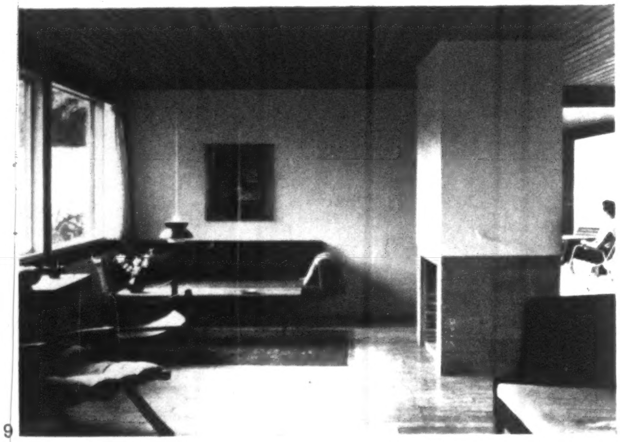


8

This is a large house, divided into children's rooms on the north and parents' rooms to the south, and with two outdoor terraces. 7, looking across the living-room to the parents' terrace. 8, opposite, the west side of the house from the garden.

6, at Skovbrinken 13, Charlottenlund



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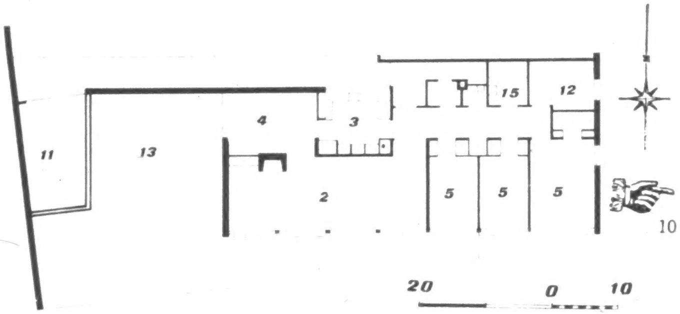


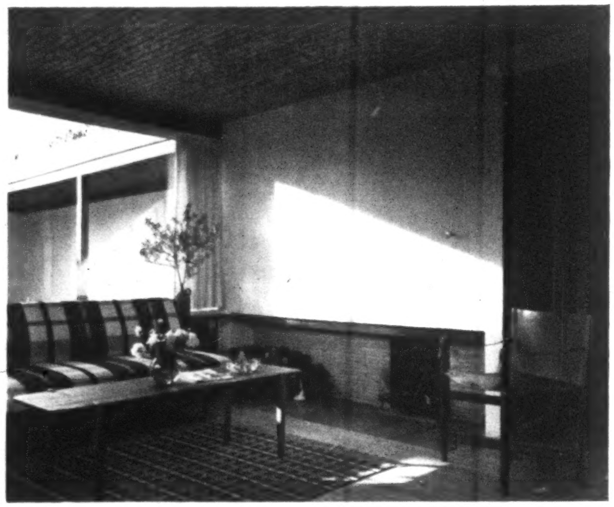
10

A house for two adults and two children, with a basement under the bedrooms at the eastern end. 9, the fireplace end of the long living-room, with the terrace beyond. 10, opposite, the south front, showing the terrace screened by the living-room and garage.

key to plans
1, hall
2, living room
3, kitchen
4, dining room
5, bedroom
6, studio
7, sun room
8, hobby room
9, boiler room
10, study
11, garage
12, store
13, terrace
14, play area
15, bathroom
16, laundry

ELEVEN DANISH HOUSES

7, at Skovmosevej, Gentofte



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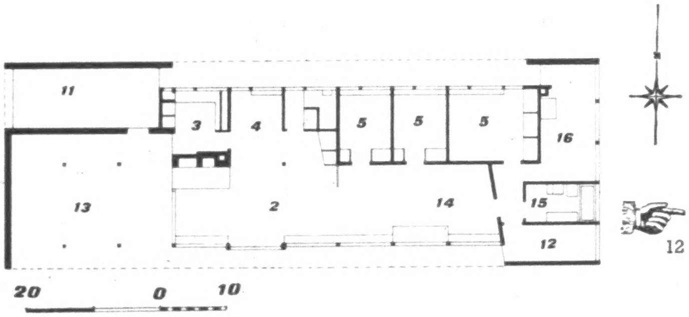
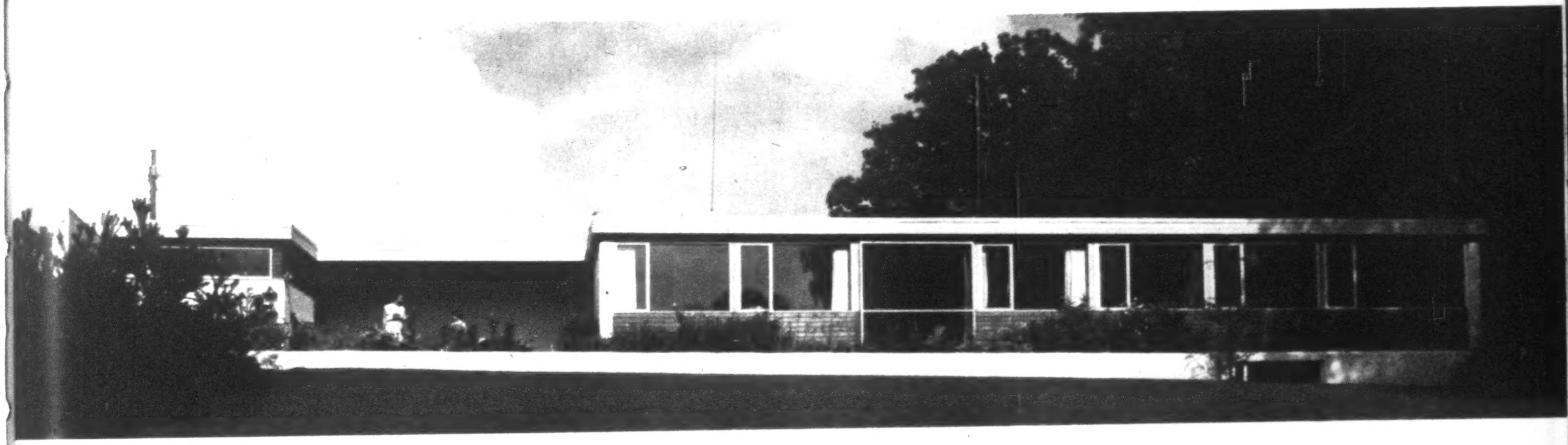
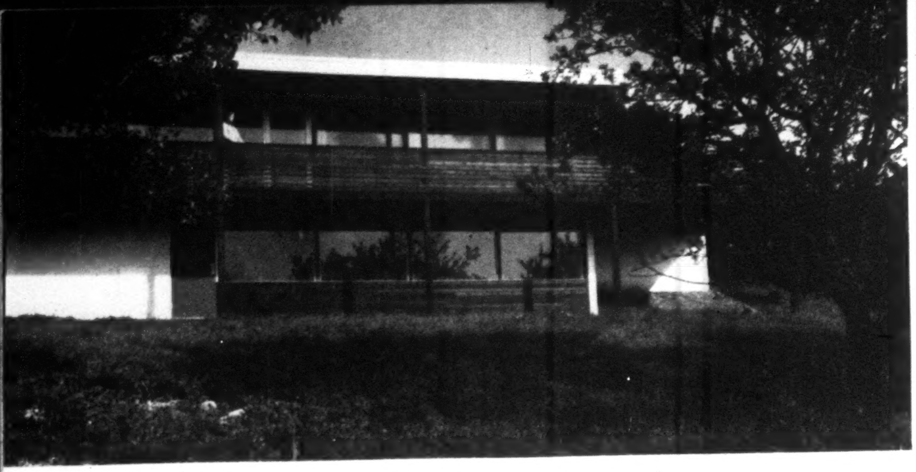
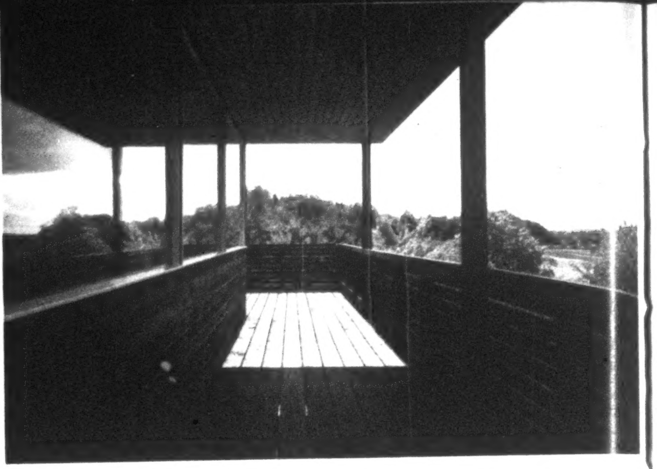


12

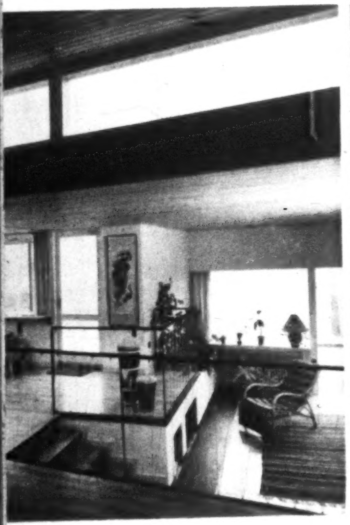
A long low house, its lines extended by the terrace at one end. 11, the fireplace end of the living-room with the terrace beyond. 12, opposite, the house from the south-west. The overhanging roof is continued across the front of the terrace.

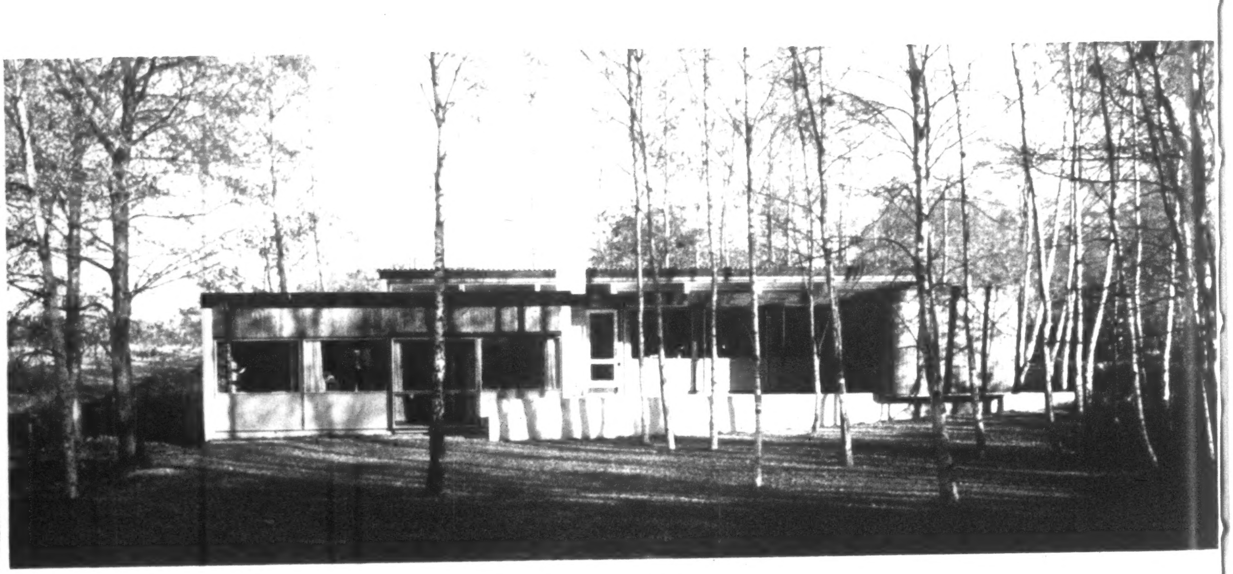




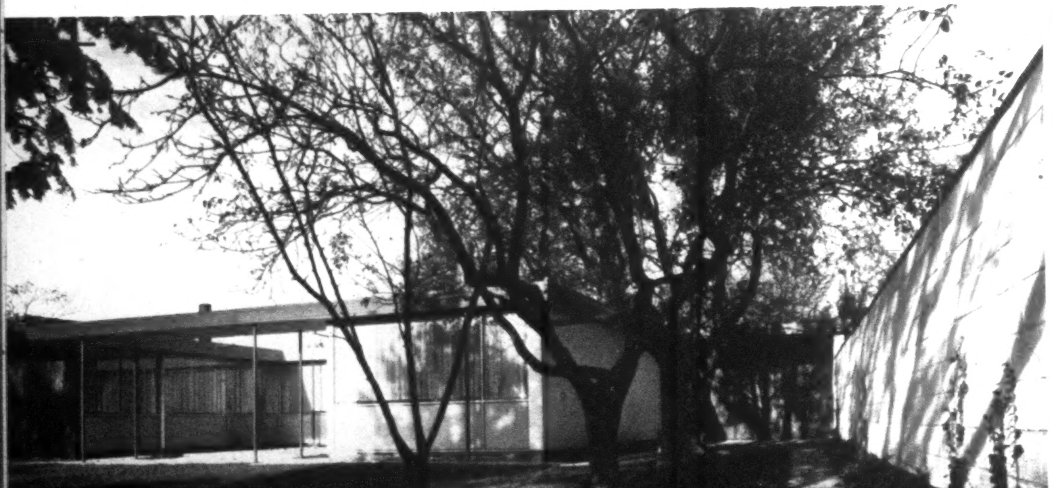


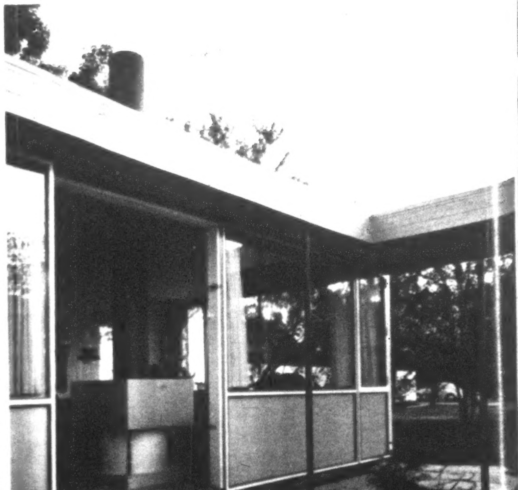
13. the garden front shows the two storeys, with a hobby-room at low level and dining-room and living-room above. The site slopes steeply so that these rooms are at road level on the north. 14. the first-floor balcony which runs the full length of the west side.





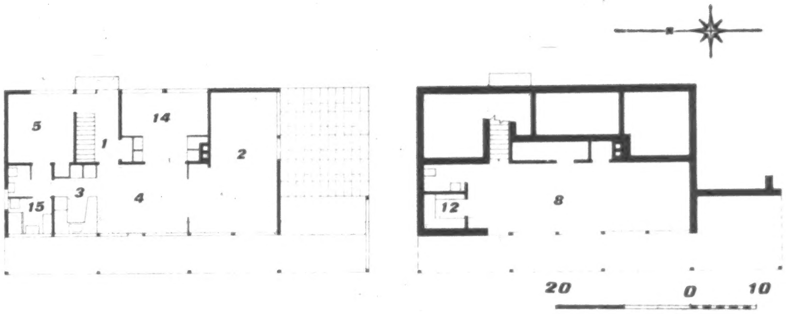
The house is designed in three wings, enclosing a sheltered courtyard, which is partly roofed over and connected with the living-room and hobby-room by glazed sliding doors. 18. the house from the south-east looking across the garden and courtyard towards the hobby-room. 19. the living-room seen from the courtyard.





8, at Vasevej, Holte

13 14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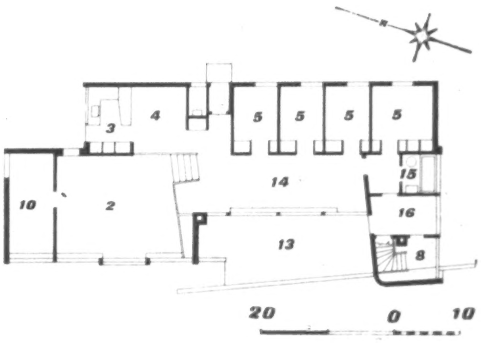
15, 16

15. looking from the dining-room across the two-level living-area to the terrace. 16. the house is set in a small birch wood: in this photograph the living-room is on the left and the terrace in the centre. The clerestory windows give additional light to the dining-room and bedrooms. 17. the south-east corner of the house.

17

9, at Harestien, Skade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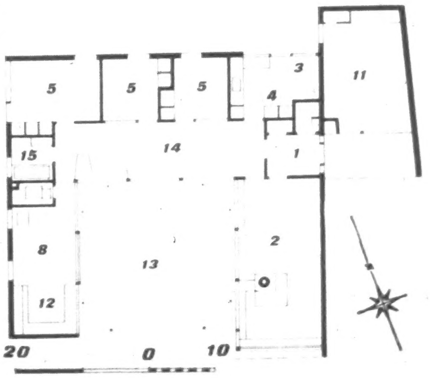
key to plans

1. hall
2. living room
3. kitchen
4. dining room
5. bedroom
6. studio
7. sun room
8. hobby room
9. boiler room
10. study
11. garage
12. store
13. terrace
14. play area
15. bathroom
16. laundry

20. the south window wall of the living-room and two bedrooms, and the screen wall of the hobby-room, which is of light yellow bricks.

10, at Skovshovedvej, Charlottenlund

18, 9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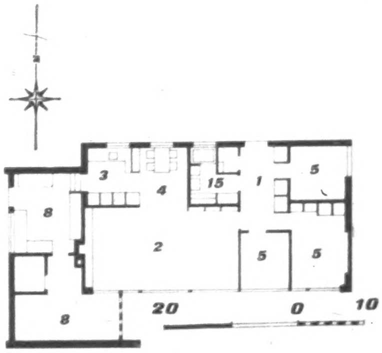
11, at Jaegersvinget, Gentofte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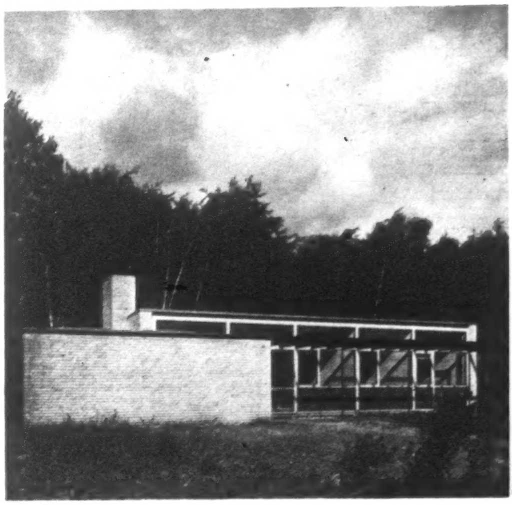
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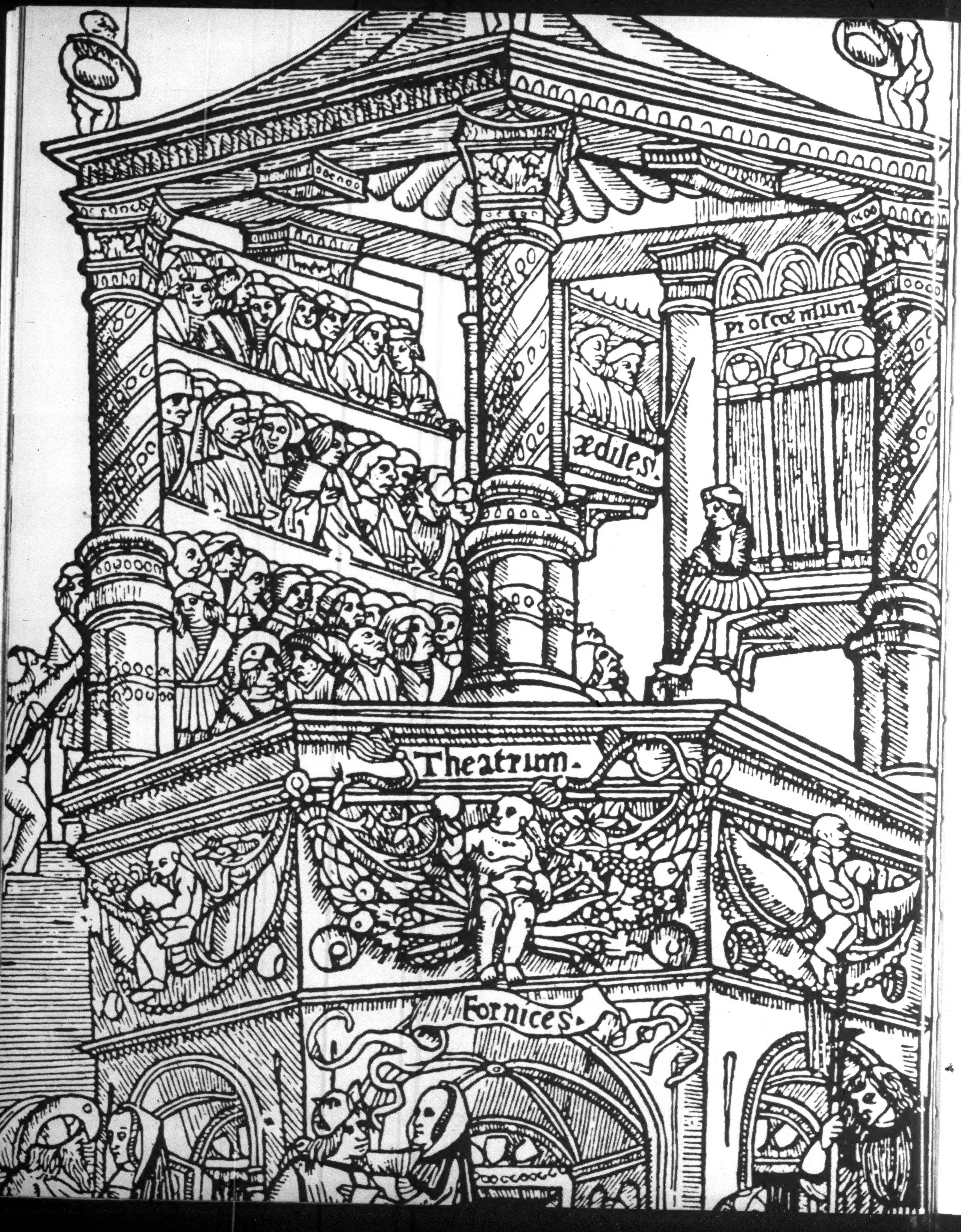
Proſcœnium.
ædiles.
Theatrum.
Fornices.

The crisis of the open stage appears to be as old as the literary theatre in Europe—the woodcut opposite, from the Lyons edition of Terence's Comedies, *dating from* 1493 *and based on garbled literary descriptions of Roman Theatres, already uses the word* proscenium *to describe something that contains the seeds of the picture-frame stage. But the solitary actor is apparently coming down on to what is still an open* platea or arena, *not yet invaded by the audience who sit in tiers round the sides of the structure, so that the whole approach is substantially what Richard Leacroft, in the article below, would describe as that of three-sided staging.*

Richard Leacroft

THE OPEN STAGE

Just over one hundred years ago the English actor was finally confined, protesting vigorously, behind a gilt picture-frame, where his performance was subordinated to the overwhelming demands of pictorial illusion. Previously the actor had performed on a stage within the auditorium, the scenic machinery being confined to a rear stage. As a result of managerial desire to accommodate the larger audiences drawn by the attractions of scenic illusion, the actor was gradually pushed back amid the scenery, and his now 'useless' area of stage was replaced by seating. The theatres of Restoration England were both small and intimate,* as indeed were those of Shakespearean times, their gradual replacement by bigger, but not better, theatres coincided with a period during which drama was subordinated to spectacle. In these large theatres of the late eighteenth and nineteenth centuries the actor was forced to adopt vocal gymnastics of rhetoric to enable his lightest asides to be heard in the dim recesses of the huge auditoria. Today this scenic form of entertainment is better provided by other media, which have taken with them those members of the audience who are satisfied by the spectacular productions of mass entertainment, leaving behind a smaller public interested in taking part in purely dramatic productions; an audience which is, in the main, too small to fill the existing theatres.

The removal of the spectacular production to other fields has left the actor in a position where he may once again dominate the scene, and, as might be expected, the experimental sections of the theatrical profession which have grasped at the possibilities inherent in this situation have tended to swing to the opposite extreme, and throwing overboard all vestiges of the scenic illusion which has held them in bondage, have stepped right out of the picture-frame back into the centre of the audience. Such extremes are not perhaps fully desirable, and the retention of a degree of controlled scenic illusion should be a feature of any attempt to arrive at an ideal theatre, if such a thing is possible.

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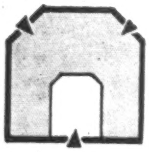
* Wren's Drury Lane, *The Architectural Review*, July, 1951.

The departure of the mass-entertainment audience has made possible a return to the smaller theatres which were the natural product of the era when actor and drama held sway, and it may well be advisable to take advantage of this situation and provide buildings in which it would be possible to achieve the intimacy of voice and action generally considered ideal today. The desire to break free from the picture-frame is in itself no new thing, and many experiments have been made since the middle of the last century which range from the Elizabethan experiments of Max Krüger and William Poel to the productions of Max Reinhardt at the Grosses Schauspielhaus and the Redoutensaal, of Jacques Copeau at the Vieux Colombier and of Okhlopkov at the Realistic Theatre.

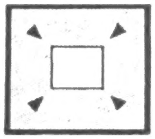
Whilst the aesthetic demand for a closer integration of actor and audience was the major motivating cause of these experiments, the mounting cost of providing orthodox picture-frame theatres led, particularly in America, to the adaptation, and later to the construction, of open-stage theatres. The Penthouse Theatre, Washington, erected in 1940, was one of the earliest of these theatres, and, as the accompanying illustrations suggest, this solution to the problem of providing adequate, economic premises for presenting drama, has now become established in America, France and Italy. In England, however, the open stage has not as yet found commercial favour, and examples are limited to John English's tented Arena Theatre, the Edinburgh Festival adaptation of the Assembly Hall, the—as yet incomplete—Mermaid in the City of London, the Library Theatre at Scarborough and the Royal Festival Hall. In addition to these examples there have been further adaptations of halls such as that used by the Cockpit Theatre Club.

The idea of the open-stage is, however, now gaining some acceptance, and it is only as to the actual form that the open-stage should take that there is any real controversy. In all forms the actors and audience are in the same room, but the stage and seating can be arranged in a variety of ways which fall under three main headings, each relationship having its own particular contribution to add to dramatic experience:—

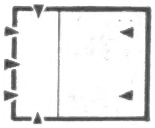


1. *The Three-sided Platform Stage.* The Acting Area can here be a flat area of the auditorium floor, but it is more generally a raised stage, projecting forward from one wall of the hall and surrounded on three sides by an audience. This stage may be equipped with a certain degree of scenic illusion, and it has the advantage of providing entry for the actors both through the audience and also direct through the stage wall.*

   Although the stage and hall are more often rectangular, both the Arena Theatre, Birmingham, and the Festival Theatre, Stratford, Canada, are variants on this form being of a horse-shoe plan.



2. *Theatre in the Round or Central Staging.* The Acting Area is usually an open area of floor—circular, oval, octagonal or rectangular—in the centre of the auditorium, but it may on occasion be raised. The audience is disposed on all sides as equally as the shape of the hall permits, although in one variant on this form the audience is disposed in two blocks on opposite sides of the acting area, with access for actors and scenic furnishings on the remaining two sides as may be seen in the small adaptable theatre at Mannheim and in the Teatro S. Erasmo, Milan. In all other forms entrances for the actors must be made through the audience, and there should be access to each side of the acting area; at least one access way being arranged at acting level to permit movement of furniture. Scenery is normally confined to such units of furniture, or variations of acting level, as are required by the action of the play.



3. *End Staging.* The Acting Area is placed across one end wall of the auditorium, with the audience seated before it. The arrangement being similar to that which existed for the picture-frame theatre, but here the two units are now contained within the same room. Variations can be made to the shape of the front of the stage, which may be angular or curved, with a corresponding fan-shape for the seating. Actors' entrances can be made through the audience or through the rear or end walls of the stage.

   Variations on these stage arrangements are also possible, and the *Flexible Stage* permits the Acting Area to be placed in a corner of the auditorium, or at any other point appropriate to the differing productions. Various projects also exist which permit the rearrangement of the units so that any of the above forms may be assembled within the same building, an example of such a building being the Ring Theatre, Miami.

These new forms of theatre require revised techniques from the actors, playwrights, audience and, of necessity, the architect. Whereas the actor had previously to project his personality and his voice in exaggerated gestures and tones across the span of

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* The exponents of this form of stage tend to refer to it as The Open Stage, this title is, however, misleading as all these forms are open stages.

3 orchestra well, stalls and pit to the far recesses of the circles and galleries, he must now adjust himself to conditions in which he may express himself in normal gestures, easily appreciated by the new audience now seated under conditions previously enjoyed only by those occupants of the stalls who had provided themselves with opera glasses. In all but form 3 the actor is wholly or partly surrounded by his audience, and he must therefore perform three-dimensionally, and learn to act as competently with his back as with his face.

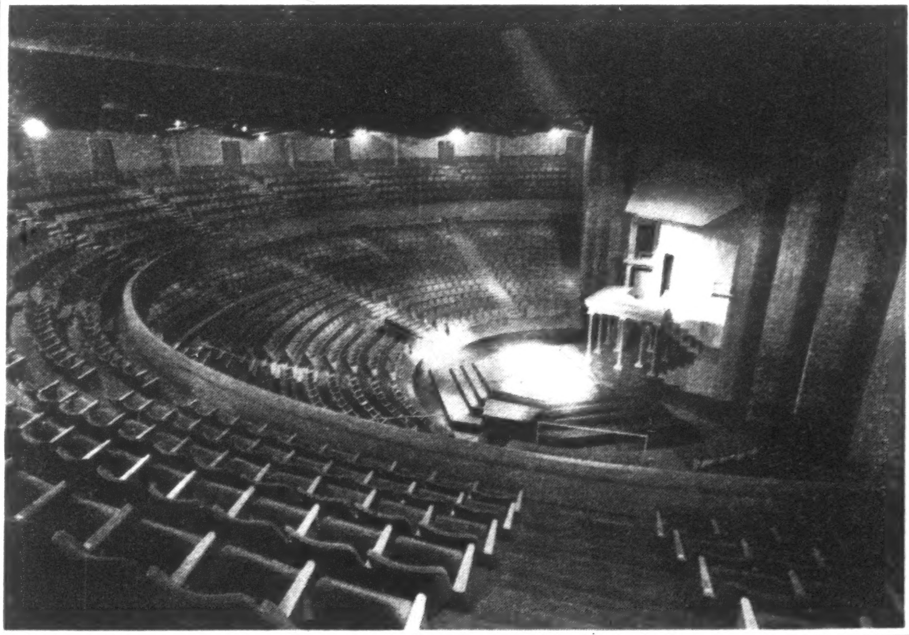
Whilst all forms of plays have been performed under the new conditions, including those first written for realistic production on the picture-frame stage, the most suitable plays are those originally written for performance under similar open-stage conditions, which place the emphasis upon the drama and the actor. The open-stage conditions of the Canterbury Festival of 1935 produced *Murder in the Cathedral*, and the productions of Theatre in the Round are already encouraging new dramatists.

The audience too must adapt itself to the new relationship which permits a view of their opposite numbers seated beyond the actors, and this it usually manages to do quite readily, although those persons strongly conditioned by the conventions of the picture stage sometimes find the necessary adjustment difficult to make. It is, however, noticeable that the younger audiences, as yet uninhibited, find no difficulty in accepting what is at best merely another theatrical convention. The loss of elaborate scenery is in itself no great detriment, indeed its absence permits the imagination free rein undisturbed by attempts at simulating realism with the conventional items of scenery: flats, rostra and the seldom perfect back-cloth. Where scenic items, furniture, clothing, etc., are used, the items must be perfect, as otherwise their nearness to the audience reveals any flaws, and the audience that is not carried away by the force of the acting may well become only too aware of the last minute safety-pin or the goose-pimples on an otherwise fair skin.

These new considerations affect the architect concerned with theatres in two ways. In the preparation of designs for new theatres, and in designs for the multi-purpose halls which are such a standard feature of civic and scholastic life, and which have never been of much value for orthodox theatrical presentations, when sight lines have been limited by the necessity of retaining a flat floor to the auditorium.

An architect conversant with the general requirements of open staging can design a multi-purpose hall in such a way that it can serve a really useful theatrical purpose. The adaptation of such a hall to these new needs will require the introduction of some method of raising each consecutive row of seating to provide adequate sight lines for all the audience. The Studio Theatre Company, who have had wide experience in touring their productions of Theatre in the Round, make use of collapsible theatrical rostra 6 ft. by 3 ft. and 3 ft. by 3 ft., varying in height from 1 ft. to 4 ft. These rostra, together with some adaptable units for making up the uneven widths of halls, provided the range of variations illustrated here necessitated by the differing shapes of each hall visited. The problems encountered by this company suggest that new halls be designed with the module of similar rostra in mind, and that walls be kept free of such projections and obstructions as may be caused by pipes and radiators.

The introduction of a gallery or galleries is not prohibited by the new uses to which such a hall may be put, but their design will be conditioned by the new and shortened sight-lines which will result; additional galleries could well be introduced along the sides of the hall above any side passages. Wherever possible doors should be arranged in the side walls of the hall permitting access to each corner of a centrally-placed acting area. These doors should be connected outside the hall so that they may be used interchangeably by the actors, who will also require



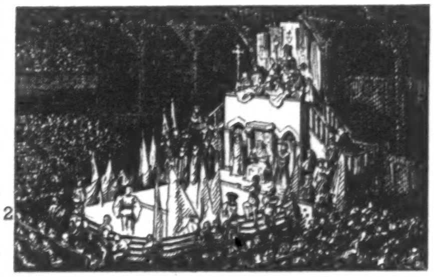
three-sided platform stage

FESTIVAL THEATRE, STRATFORD, ONTARIO, 1957
Architects: Rounthwaite and Fairfield

1, *seating*, 2,190. *A three-sided platform stage surrounded by a horseshoe of seating on two levels.* 17 *rows of seats, none farther than* 70 *ft. from the stage. The theatre is designed primarily for Shakespearean productions and the stage*—30 *ft. by* 39 *ft. including steps—has a permanent balcony and inner stage. Steps lead to the balcony from the stage and both can be reached from back stage.*

below: THE ASSEMBLY HALL, EDINBURGH

2, *three-sided platform stage production of 'The Three Estates' by Tyrone Guthrie*, 1948. *This adaptation of an existing hall was a precursor of the Festival Theatre, Stratford.*



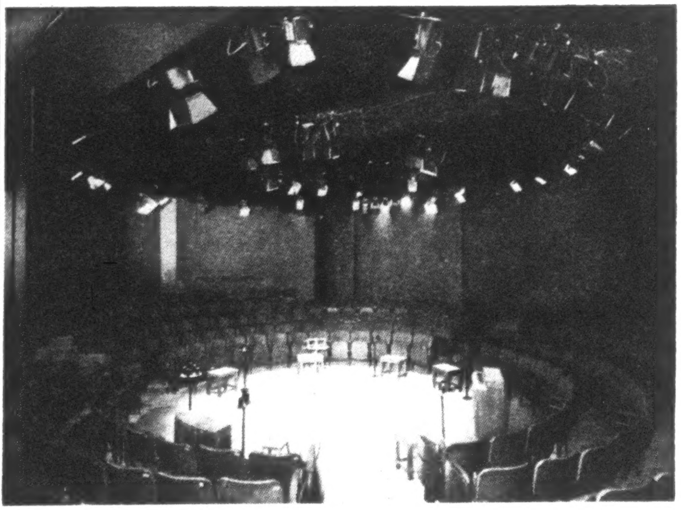
access to the dressing rooms and a small furniture or scene store. The inclusion of a normal raised stage at one end of the hall for lectures and other similar functions will permit ready access to the acting areas of either End or Corner staging. Wherever possible separate entries should be provided for the audience and the actors, but where this is not possible some provision must be made in the seating arrangement so that the inevitable late-comer may reach his seat without using a door allocated to the actors. As scenery is seldom used in these productions the normal fire-restrictions relative to the picture-frame stage do not apply, but the arrangement and fixing of the tiered seating must be confirmed with the local authority.

In the various forms of open stage illustrated here some suggestion at illusion has been sought, although it may be no more than an attempt to separate the real world of the audience from the illusionistic world of the actor by lighting the latter and blacking out the former. It will be appreciated that it is no easy task to prevent the illumination of the audience by reflected light from the acting area, particularly in an existing hall where wall and ceiling surfaces are probably of a light character. In new buildings erected specifically for theatrical purposes every attempt should be made to ensure that these surfaces are non-reflective, and preferably unobtrusive both as to their form and decoration. Whilst dark tones are preferable a sombre note is neither necessary nor desirable; dark maroon and similar colours have proved suitable and the use of broken surfaces could well provide the necessary light trap. The appearance of the actual hall should not however be too clinical, and some degree of theatrical atmosphere must be conveyed, possibly by the use of variable coloured light. Exciting effects of light and decor should however be reserved for foyers and refreshment rooms where the patrons can be encouraged to gather before and after the performance.

For forms 1 and 2 the stage light fittings should be placed at high level so that their beams fall at an angle of from 45°–60° and do not intrude on the vision of the audience. For this purpose provision should be made in multi-purpose halls for supporting temporary units of stage lighting high up at any point on the side walls of the hall, where they can be connected to plugs wired to the switch-board. The position of this board must be planned to permit observation of all parts of the hall. In addition it should be possible to hang further light units above whichever part of the hall is to form the acting area. These could conveniently be supported, together with a loudspeaker, in a hanging fitting which might be designed to act as a sounding-board to reinforce the actors' voices for the benefit of the audience seated directly behind them. A similar fitting should also be incorporated in new theatres, and to simplify maintenance it would be advisable to arrange this so that it may be raised and lowered. Access should also be provided to the light units arranged around the circumference of the auditorium in wall or ceiling so that adjustments may be made during a performance.

Whilst the short-time advantages which can accrue to drama from the occasional use of a multi-purpose

theatre in the round or central staging



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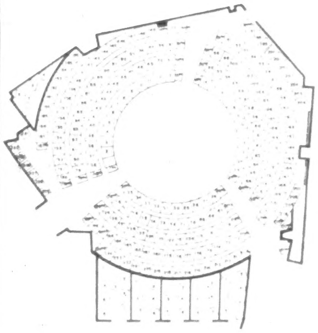
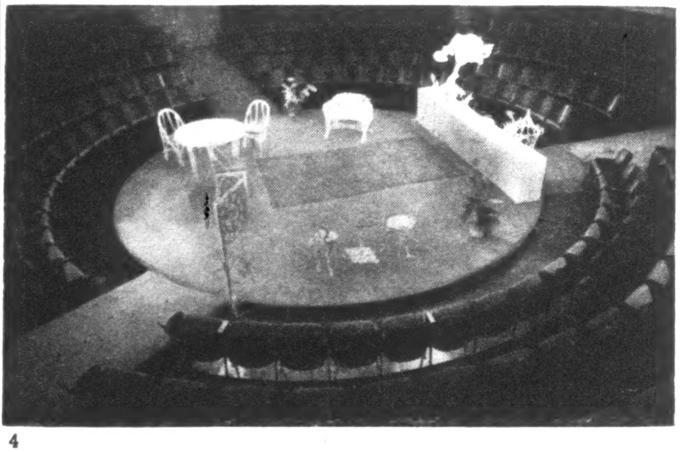


THEATRE EN ROND, PARIS, 1954
Architect: George Leblanc

3, *seating,* 305. *Circular acting area 17 ft. 4 in. diameter. Ceiling, black; walls, dark red; chairs, red upholstery; carpet, deep grey. Lighting units are suspended in full view of the audience, but the light beams are masked by shields attached to each spotlight. Individual box for orchestra and five boxes for audience.*



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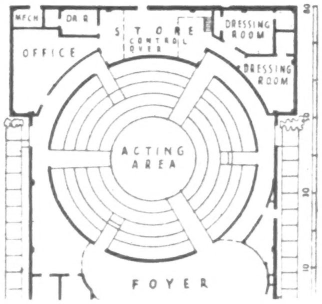
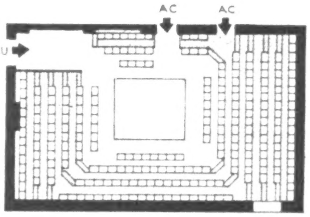


HOUSTON, PLAYHOUSE, 1951
Architect: B. J. Greenwood

4, *seating* 306. *Overall diameter of hall 54 ft. Stage diameter 22 ft. 3 in. Seats are painted black with dark red upholstery. Interior of acting area, charcoal; walls and ceiling, black. The circular stage, slightly raised above the floor of the first row of seats, houses a turntable.*



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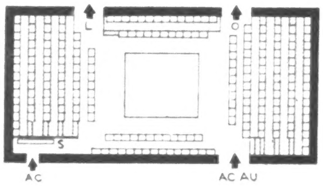

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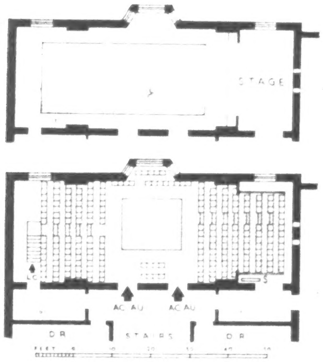
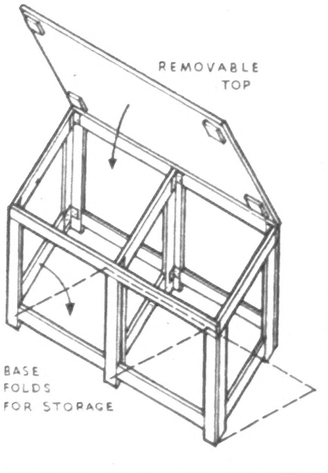
5, *Studio Theatre adaptation of Theatre Centre, Birmingham, for the tour of Phaedre.*
6, *Library Theatre, Scarborough.*
7, *Studio Theatre adaptation of Vaughan College Hall for Phaedre; above, the orthodox arrangement; below, theatre in the round.*


STAGE
AC AU
AC AU
D R
STAIRS
D R
FEET

7

8, *detail of the rostrum.*
9, *Studio Theatre: unloading units from the lorry;* 10, *unassembled units, including rostra bases, a rostrum top and safety rails;* 11-14, *the rostra being assembled.*
15, *the production of Phaedre at Vaughan College, Leicester.*


REMOVABLE TOP
BASE FOLDS FOR STORAGE

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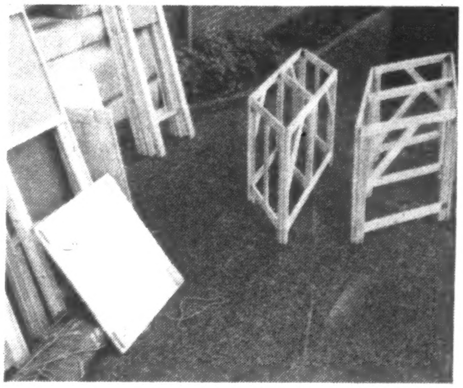

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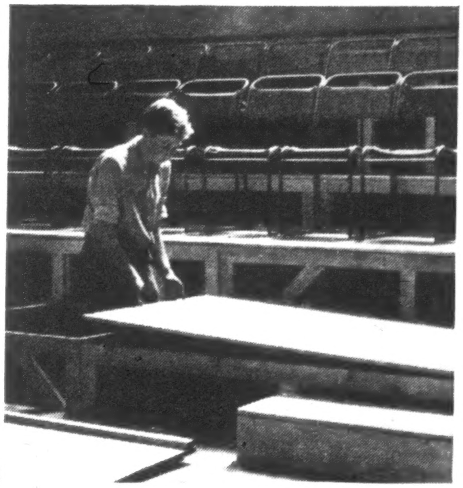

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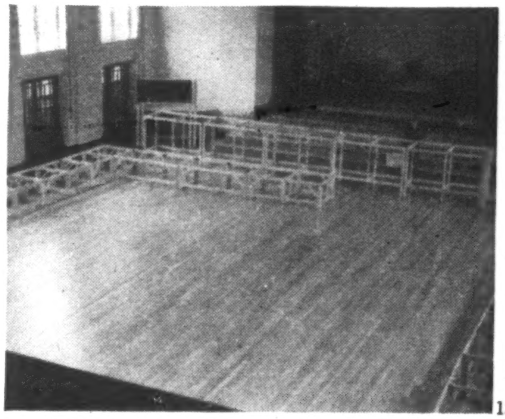

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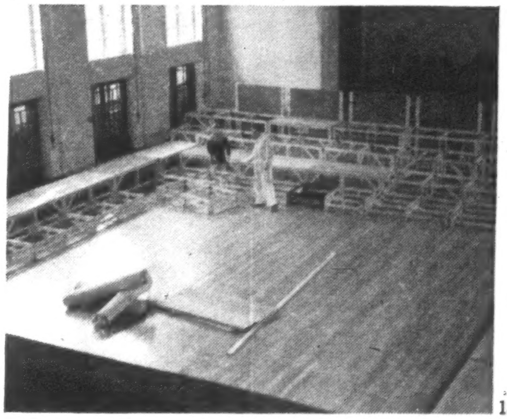

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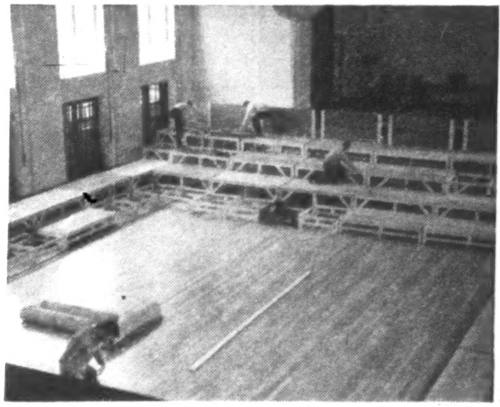

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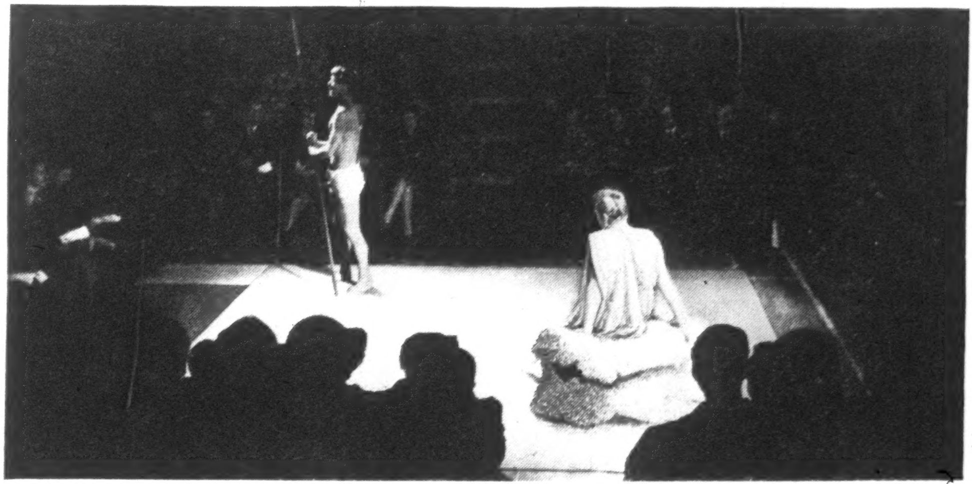

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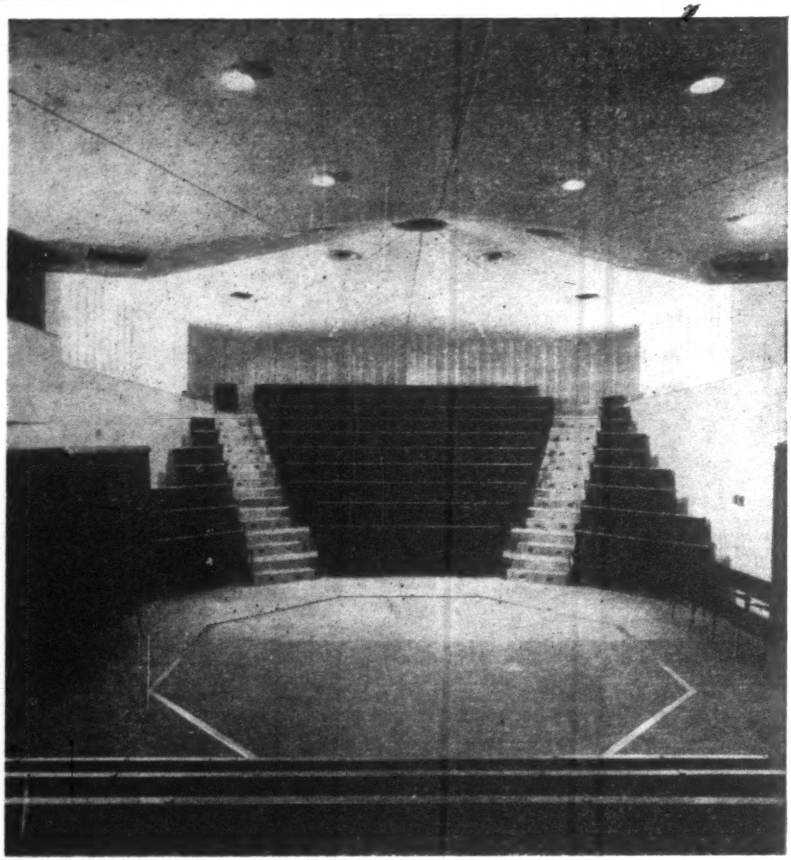
theatre in the round or central staging



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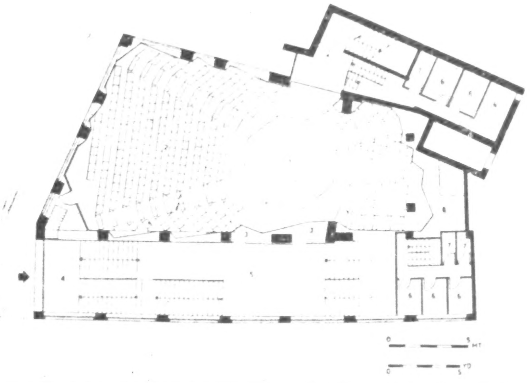
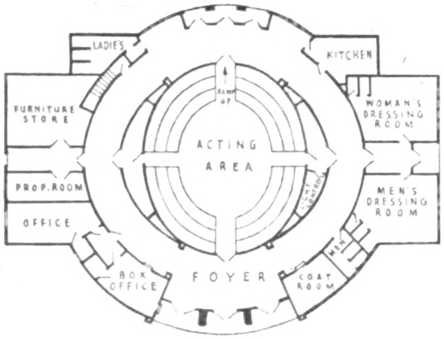
TEATRO SANT' ERASMO, MILAN, 1953
Architect: Carlo de Carli

16, *Seating 250. An example showing the arrangement of seating in two blocks on opposite sides of the acting area. Two curtained entrances for actors and scenic items on the other two sides, with balconies above as lighting booths. Further stage lighting units and a loud speaker are concealed above the white acoustic ceiling. Walls are red and upholstery a dark blue velvet. Octagonal acting area 18 ft. 9 in. across; maximum distance from acting area to rear seat approximately 31 ft.*



PENTHOUSE THEATRE, WASHINGTON, 1940
Architects: Professor Glen Hughes and Carl F. Gould

17, *Oval acting area with three rows of seats.*


LADIE'S
KITCHEN
FURNITURE STORE
WOMAN'S DRESSING ROOM
RAMP UP
ACTING AREA
PROP. ROOM
LIGHT CONTROL
MEN'S DRESSING ROOM
OFFICE
MEN
BOX OFFICE
FOYER
COAT ROOM

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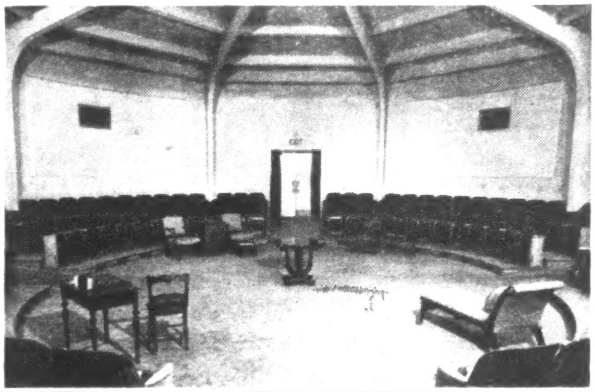

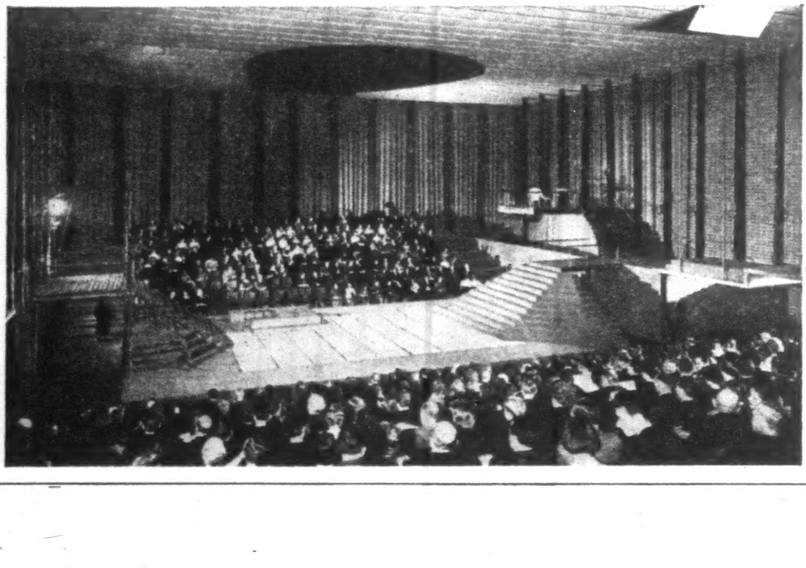

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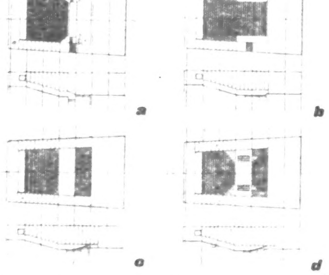


NATIONAL THEATRE, MANNHEIM, 1957 (Small Auditorium)
Architect: Gerhard Weber

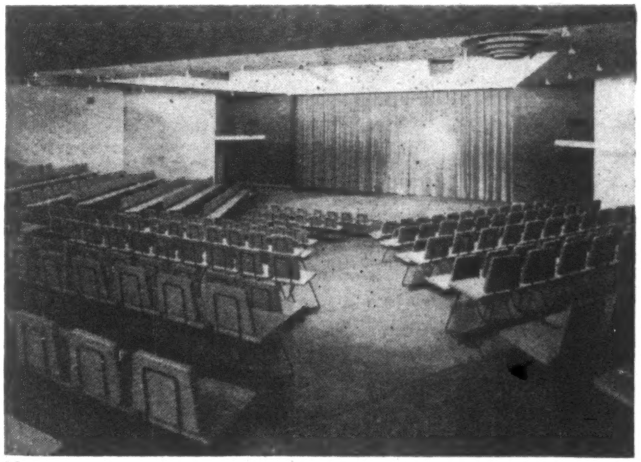
18, *seating 680. Central staging with the seating arranged in two blocks on opposite sides of the rectangular stage area. It is designed as a flexible theatre, varying from a proscenium stage with or without a fore-stage and seating some 606 people; a lecture or concert hall seating 775-871, or a theatre in the round seating 680.*

hall are of obvious importance in enabling touring companies to bring drama to those towns and villages unable to support a live theatre, it is also necessary to consider the long-term policy of providing permanent homes for drama to replace those which have fallen into decay or been deliberately demolished for their site value. Many towns and cities may well be unable to raise the £2-300,000 necessary to provide a minimum fully-equipped orthodox civic theatre, but they should be able to provide for the more economic open-stage theatre which dispenses with the costly stage volume, large scene stores and workshops required for a scenic stage. Furthermore if the cost of new building is still too great many old halls and chapels can easily be converted for open-stage productions where an orthodox proscenium stage would be an impossibility. However whether a permanent theatre is provided by converting existing premises or by new building most of the considerations outlined above will apply, the main difference being that the tiered seating may now be permanent; unless the intention is to provide a flexible theatre where the seating and acting area may be regrouped for the varying purposes of each individual production.

Where the provision of a new civic theatre capable of presenting any form of production is under consideration one advantage deriving from the new forms of staging is the possibility of erecting a theatre by degrees. If the auditorium is designed for use with open staging—preferably End staging as the sight lines are similar to those required for a scenic stage—the building can be brought into operation and the company can begin to establish itself and accumulate revenue. Then, when it becomes convenient, a scenic stage may be added to the existing auditorium beyond the End stage, which should be demountable. It is no part of this essay to suggest that scenic illusion has no part to play in the future of the drama, and although the open stage can bring new life to drama and acting, future theatres should make some provision for the necessary equipment required by the scenic stage, but this should not be allowed to dominate the scheme as it has done in the past. It is certainly essential that plays which depended upon scenic realism for their original portrayal must be capable of being performed in revival under their correct conditions.

It has already been suggested that a return to the dimensions and intimacy of our earlier theatres would be ideal; indeed where theatres type 1 and 2 are concerned the distance to the farthest member of the audience cannot be great as the actor's voice must be heard as well behind him as before. It is claimed that the main advantage of these forms over the orthodox theatre is that a large audience can be accommodated much closer to the actor than is otherwise possible, but it must be appreciated that, although they will be able to see more clearly, they may well be unable to hear as well as those members of the audience who, although seated farther away, will yet receive the direct sound from an actor on an End stage. These distances can be reduced by the use of circles, but these must not resemble the huge shelves of contemporary theatres and cinemas which split the audience into differing sections; wherever

end staging



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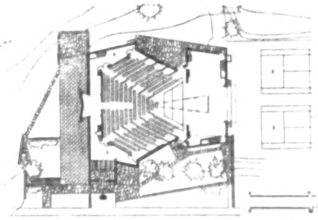
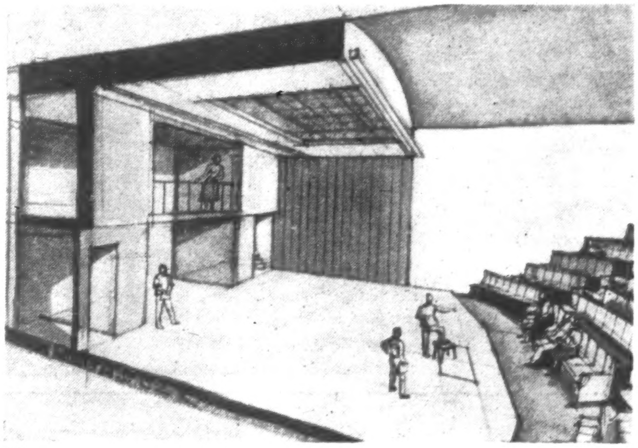


SARAH LAWRENCE THEATRE, BRONXVILLE, N.Y., 1952
Architect: Marcel Breuer

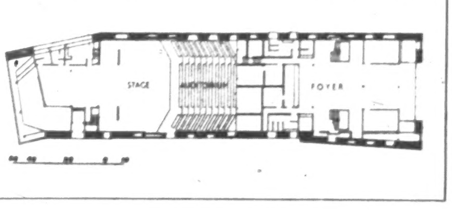
19, *seating* 500. *Three-sided end stage arranged in front of proscenium opening. The open stage is in two sections removable to provide orchestra well or additional seating area. This theatre illustrates the relationship between the seating arrangements of end staging and the picture-frame stage.*



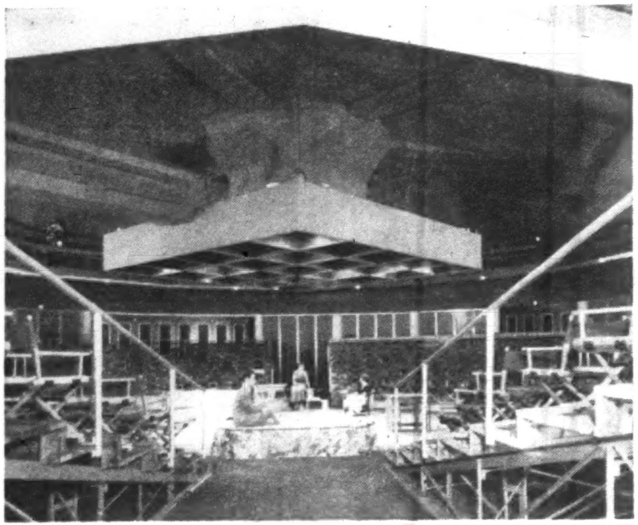
20

MERMAID THEATRE, PUDDLE DOCK, LONDON
Architect: Elidir Davies

20, *seating* 500. *End stage facing one tier of seating of* 19 *rows, in a rectangular auditorium conditioned by the adaptation of the remaining walls of a bombed warehouse. Stage raised* 9 *in. above level of lowest seat floor;* 48 *ft. wide by* 28 *ft. deep, with additional depth up to* 70 *ft. Rear row of seats* 65 *ft. from stage.*

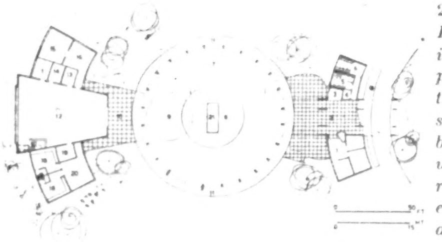


flexible theatre

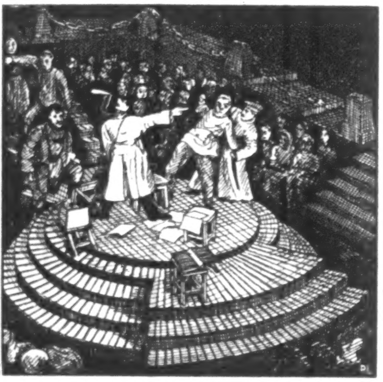


21

RING THEATRE, MIAMI, 1950
Architects: Robert Murray Little and Associates



21, *seating* 400-900. *Diameter* 100 *ft. A flexible theatre, permitting productions in the round, three-sided platform staging and end staging by movement of scaffold units of seating tiers. A revolving stage is included, and a lighting grille and ventilator is suspended over the central acting area.*



REALISTIC THEATRE, MOSCOW

22, *Here shown arranged by Okhlopkov as a theatre in the round for the production of 'Mother.'*

22

possible the single slope of seating is preferable for unifying the audience and actor. In the Festival Theatre, Stratford, Canada, the maximum distance from stage to rear seats is 70 ft., and by the use of a gallery it is possible to accommodate over 2,000 persons. This is, however, most certainly a maximum, and in the average theatre it would probably be best to limit the size of the building so that it is possible to use intimate vocal effects even under the extreme conditions of central or three-sided productions. The average provincial theatre will most certainly be unable to draw on an audience comparable to that which the Stratford theatre enjoys in its unique theatrical situation in Canada, and their more limited numbers will—in most instances—be adequately accommodated in a theatre seating from 500–700.

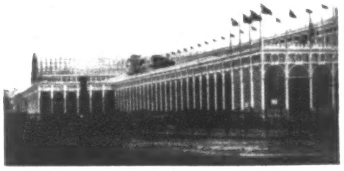
If this suggests some form of sponsorship to provide financial support for the venture—and today this is almost a foregone conclusion whatever form of theatre is concerned—then the immediate financial aid required to float the open-stage enterprise will not be so great as would be required for a scenic theatre. Today the economic quality of the open-stage is likely to prove a saving factor in the life of the drama. Theatre is needed whatever the conventions it may assume, and there is a wide audience, particularly among the young who are not yet inhibited by past conventions, ready and willing to accept any theatrical convention that is offered.

Unfortunately the attitude of far too many members of the theatrical profession, who should be energetically exploring every possible method of presenting their art to the public, is only too well summed up by the curt and disparaging comment of one theatrical critic who dismissed Theatre in the Round as theatre on the cheap. To those others who are not too hidebound to see the wider implications of theatrical history, drama can be seen to be as well served by the unadorned performance of the humble stroller on his market scaffold, as by the lavish and spectacular marvels of the renaissance court; to such the economic advantages of the Open stage, and the new challenge which it offers to dramatist, actor, audience and architect, are obvious.

The author would like to acknowledge his debt to Mr. Stephen Joseph, director of Studio Theatre Ltd. for allowing him to draw on his experience of open-stage productions.

the exploring eye

Hitherto unpublished photographs by Philip H. Delamotte record in every detail the re-erection on Sydenham Hill of the world's first demountable structure, the Crystal Palace. It is always accounted among that building's major virtues that Joseph Paxton and his engineers, Fox and Henderson, devised a structure that was not only a pioneer of prefabrication, but detailed it so ingeniously that it could be erected at miraculous speed, and could also be demounted and erected elsewhere when the Great Exhibition of 1851 was over. The facts are well known—it was taken down in 1852 after standing in Hyde Park for fifteen months, and re-assembled, in spite of interruptions from the elements, in time to be re-opened by Queen Victoria in June, 1854, in a magnificent garden setting by Paxton on the south slopes of Sydenham Hill. The ruins of that setting remain*, but hardly a column or girder of the Palace and its ancillary structures survive, all destroyed in a fire—now as much part of London folk-lore as the Great Fire of 1666—in 1936.



Nicholas Henneman, Photographer on Paper to the Queen, made his views of the Crystal Palace in its original form to serve as illustrations to the personal copies of the Report on the Great Exhibition that were presented to the Commissioners. This view (one of the few that have been previously published) of the park side shows how unimportant, visually, was the vaulted transept of the original version, set back, on this face of the building, behind projecting arcading.

By that time it had been canonised as one of the sacred sites of the Modern Movement, and its image lives on in the history books. But it is a muddled image, since the building that went up at Sydenham was not the building that came down in Hyde Park. Most significantly, it now had a half-cylindrical glass vault over the main vessel, carried on metal arches, whereas the original had a flat roof to the nave, and a vault (to clear Colonel Sibthorp's notorious elm) on the transept only, carried on wooden arches. The photographic ikonography of the Crystal Palace has so far covered the completed second version almost exclusively, and the original is known chiefly through pre-photographic images, such as engravings, though a handful of paper prints exist.

However, the Gernsheim Collection of historical photographs contains in addition to views of the Palace as it stood in Hyde Park, taken by Nicholas Henneman for the Commissioners' reports on the Great Exhibition, an invaluable comprehensive photographic record, of the re-erection at Sydenham, made for the Crystal Palace Company by Philip H. Delamotte, Professor of Drawing at Kings College, and one of the pioneers of art photography.

Delamotte appears to have taken over a hundred and twenty altogether.

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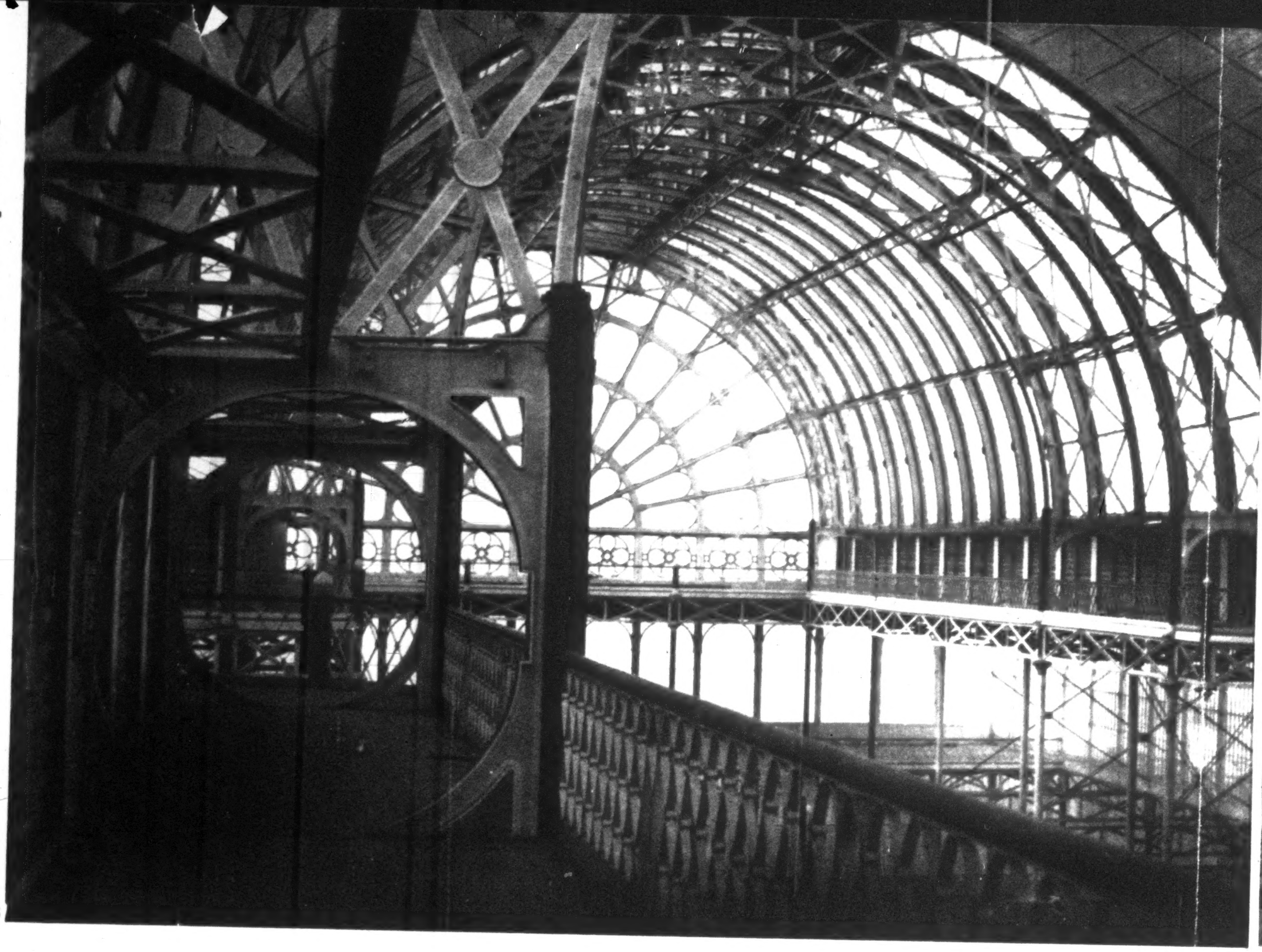
* And are the subject of an article to appear in the REVIEW shortly.

demountable palace



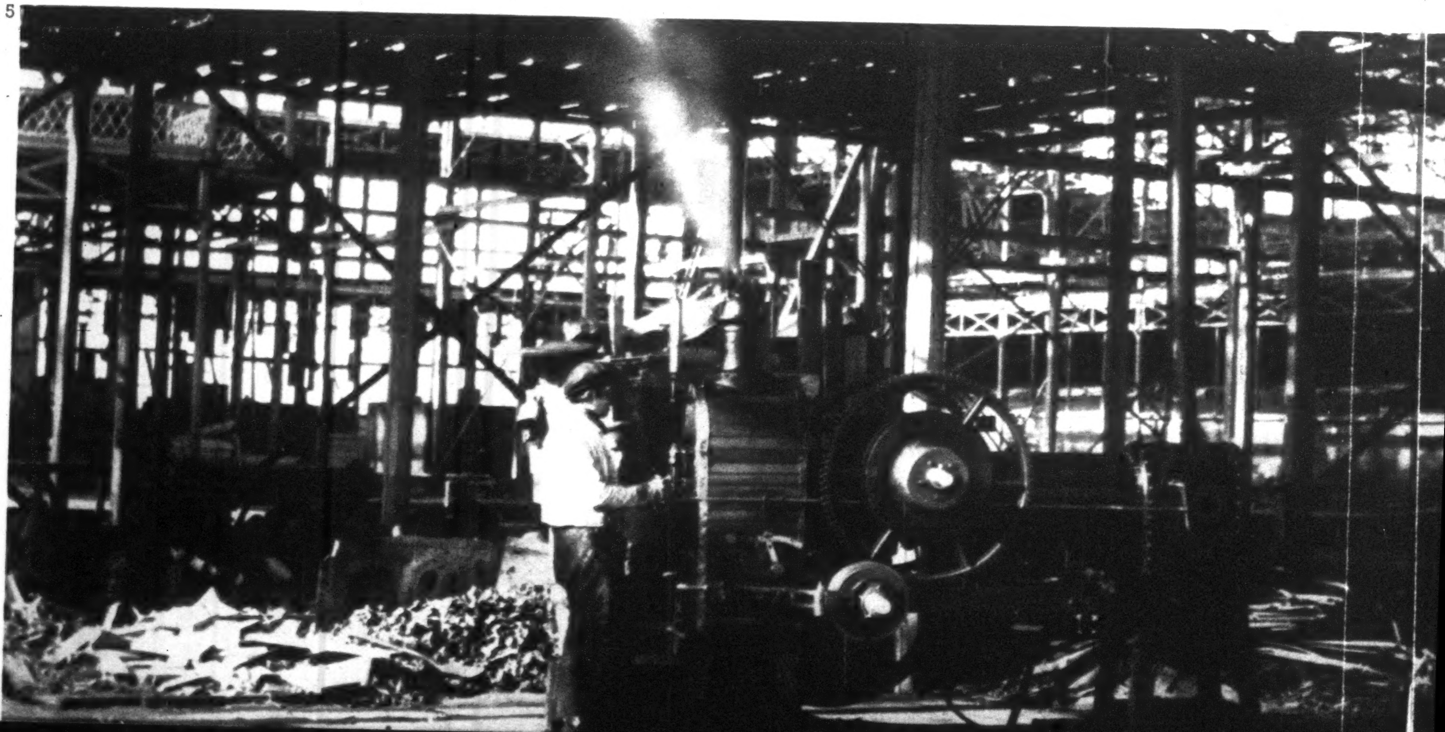
1, 2

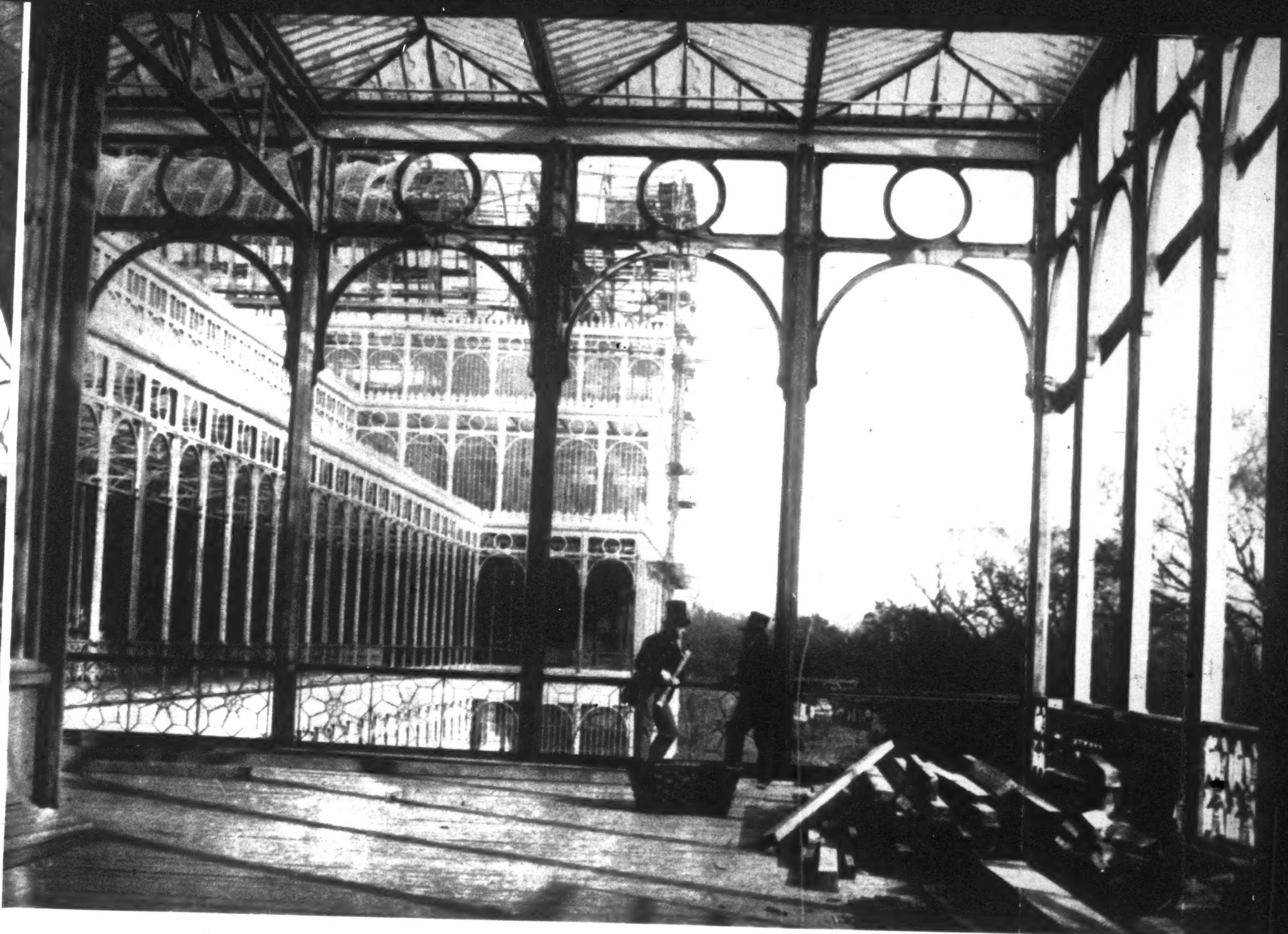
1, with the adoption of glazed vaulting over both the main spaces, nave and transept, of the Crystal Palace, important structural changes were made. Where the vaults intersected, the joins could not be effected as in a groined vault of stone, and spandrel-plates, seen in the upper right of this view, had to be introduced. In addition, large lattice strainer-arches were set up in pairs along the vaults, and were grounded on the large circle-in-square castings seen here spanning the balcony.

2, the scale of the Crystal Palace was so vast even by the standards of the twentieth century that it can hardly be appreciated by those who never saw it for themselves. It is brought out well by this progress shot (note the glazing of the transept still in course of completion) which sets human figures against th standard bay-structure with which the whole was faced, and show the ridged, green-house glazing o the roof-work.

3, here, in a late Delamotte view

4, 5





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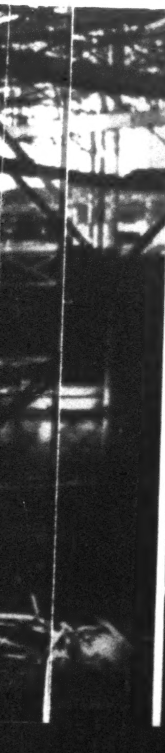
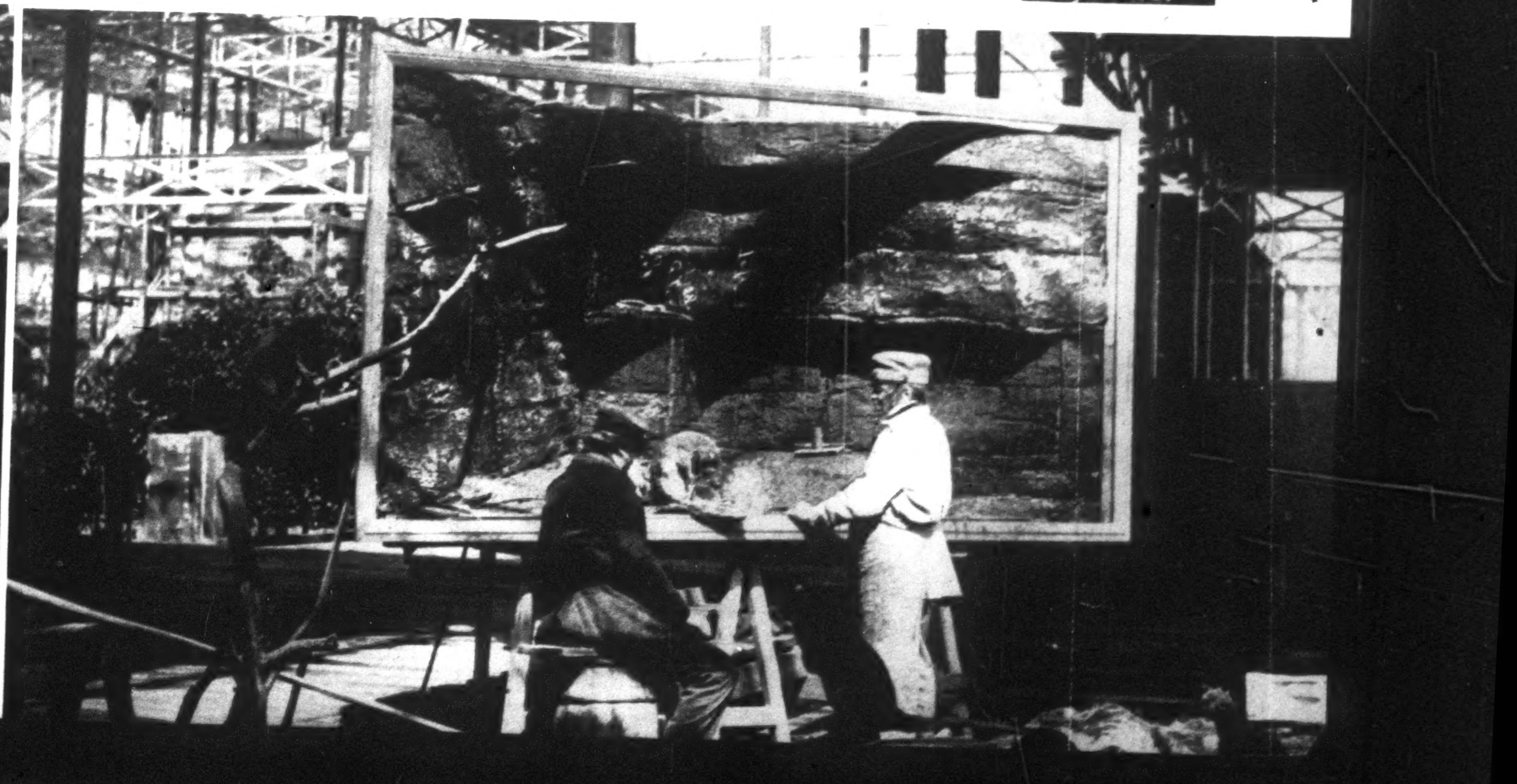
made in 1859, some impression of the sheer length of the building is given.

4, the machinery used in building the first version of the Palace is well known from engravings, but that used at Sydenham was photographed by Delamotte along with the rest of the works —the engine seen here was used to drive the winch to haul up materials for the work proceeding on the great transept in **2.**

5, one of the most baffling images from the heroic period of photography, with something of the hallucinatory 'double-take' quality of a surrealist painting by Dali or Magritte, this Delamotte views shows the assembly of one of the dioramas for the 'Aquarium' of the Crystal Palace hence the exotic wild life (stuffed) in the right foreground.

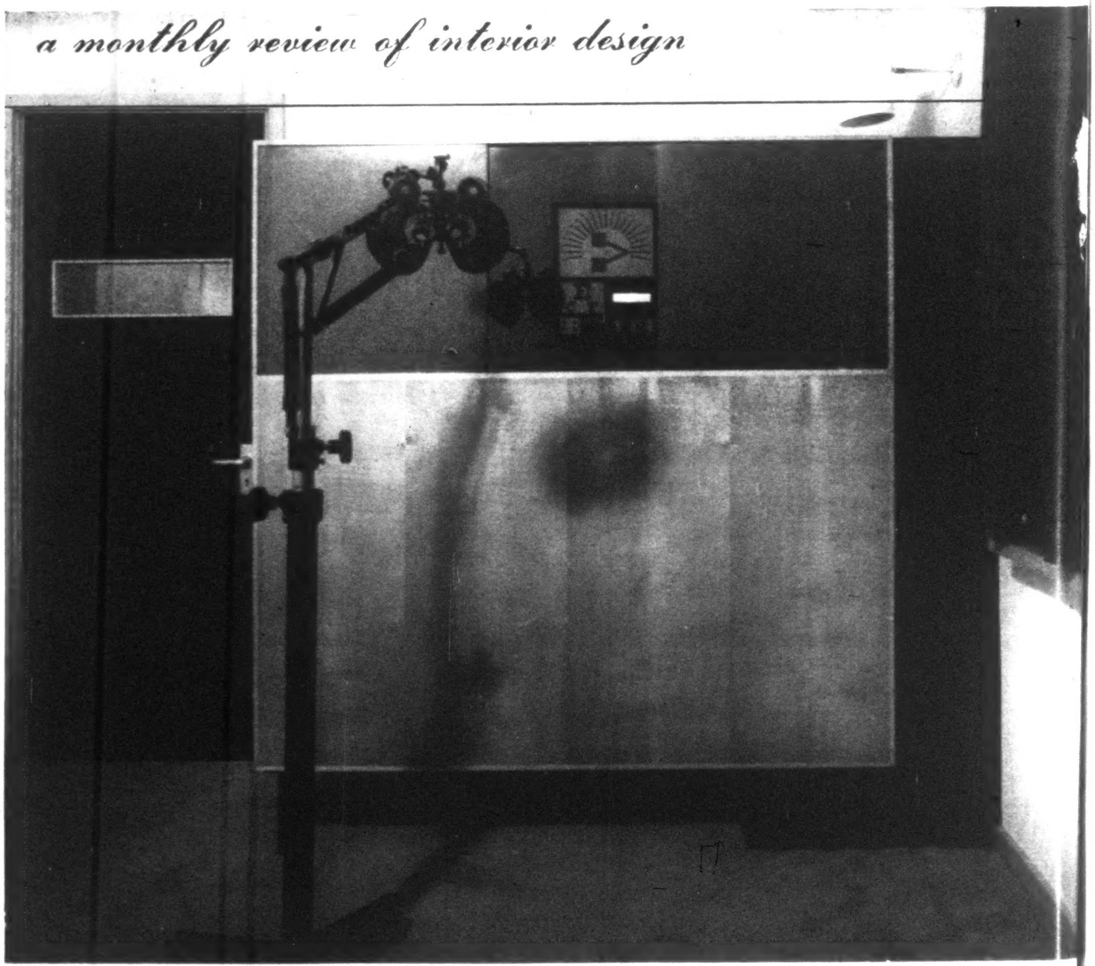
3





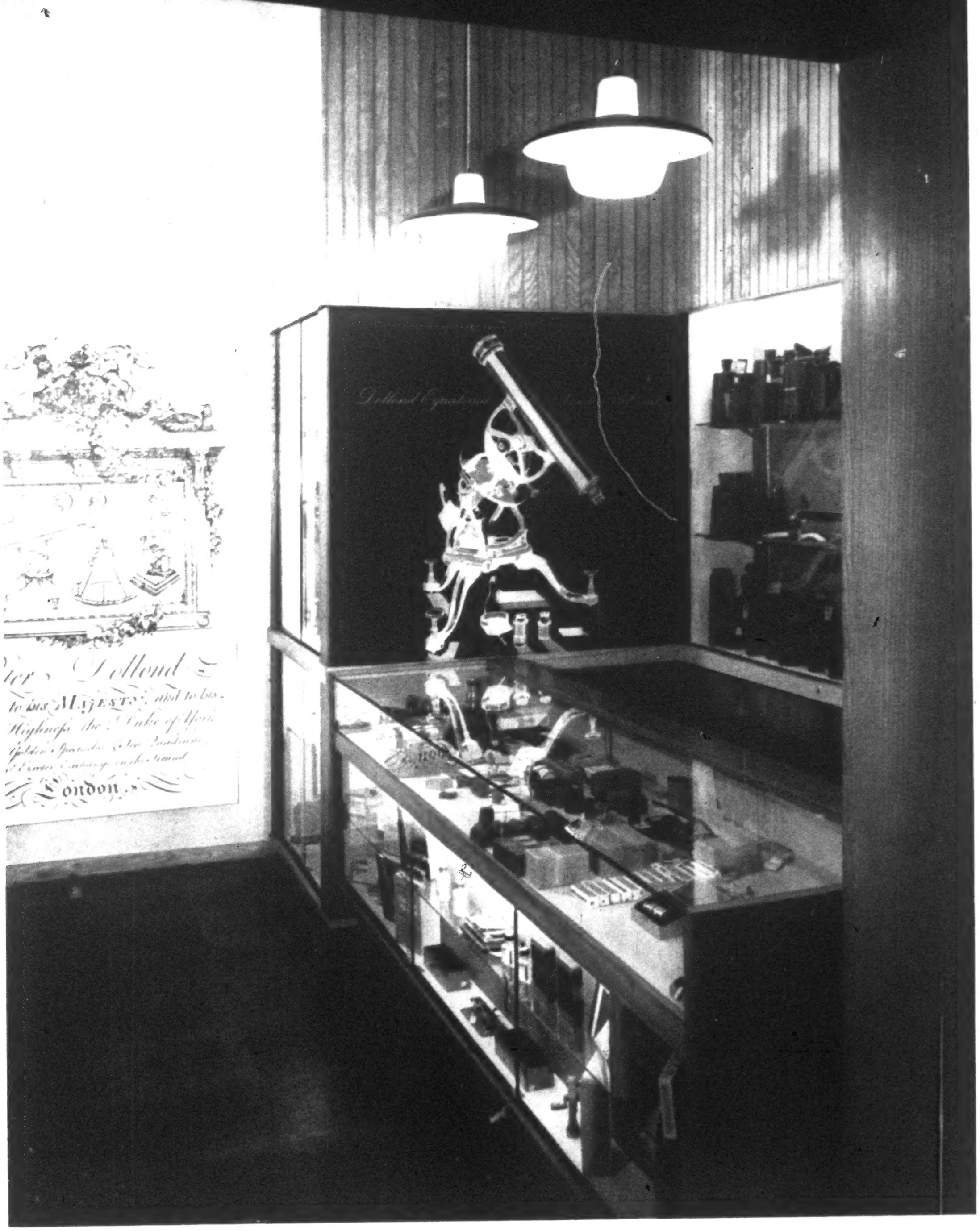
ID

a monthly review of interior design



Showrooms in Bond Street

architects: Gordon and Ursula Bowyer


ter Dollond
to his MAJESTY, and to his
Highness the Duke of York
London
Dollond Equatorial

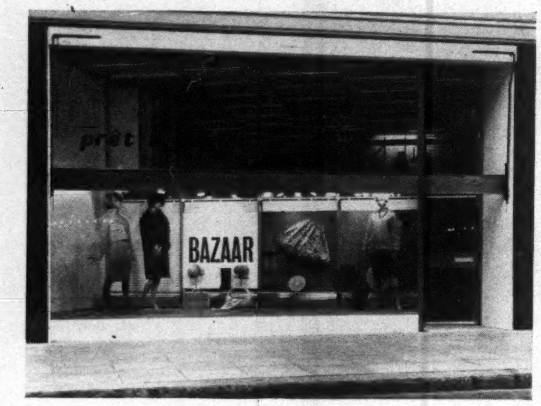
2

These premises for Dollond and Aitchison have departments for the sale of photographic equipment and binoculars on the ground floor, with larger photographic equipment displayed in the basement and a small optical department on the first floor.
1. the optical test room.
2. the photographic department, with display fittings of teak and weathered sycamore, lined with white plastic.
3. the staircase has mild steel strings with hardwood treads faced with cork. Risers are of stove enamelled metal and the balustrade is formed from mild steel rods welded to the strings.

3

Shop in Knightsbridge

designers: Conran Design Group



4

The clients required a simple, unobtrusive design which would not conflict with the clothes on display, and a large number of storage and display units. This has been achieved by a combination of white walls, grey carpet, natural timbers and muted leather colours.

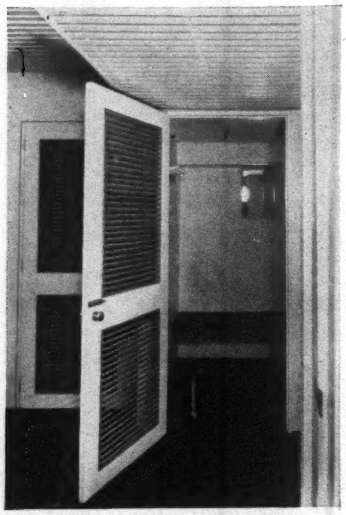
4, the shop front has an unusually low transom of Honduras mahogany.

5, louvred timber doors to the fitting rooms under the mezzanine.

6, the display fitting on the mezzanine and above it the pine slats of the false ceiling.

7, the staircase leading to the mezzanine display area and offices has teak treads, a Columbian pine string and steel brackets.

8, on the facing page ☞, the central counter for jewellery display is of rosewood with brass trim and has a leather top. It is lit by a cluster of 35 lamps with the lamp-holders encased in brass sleeves.



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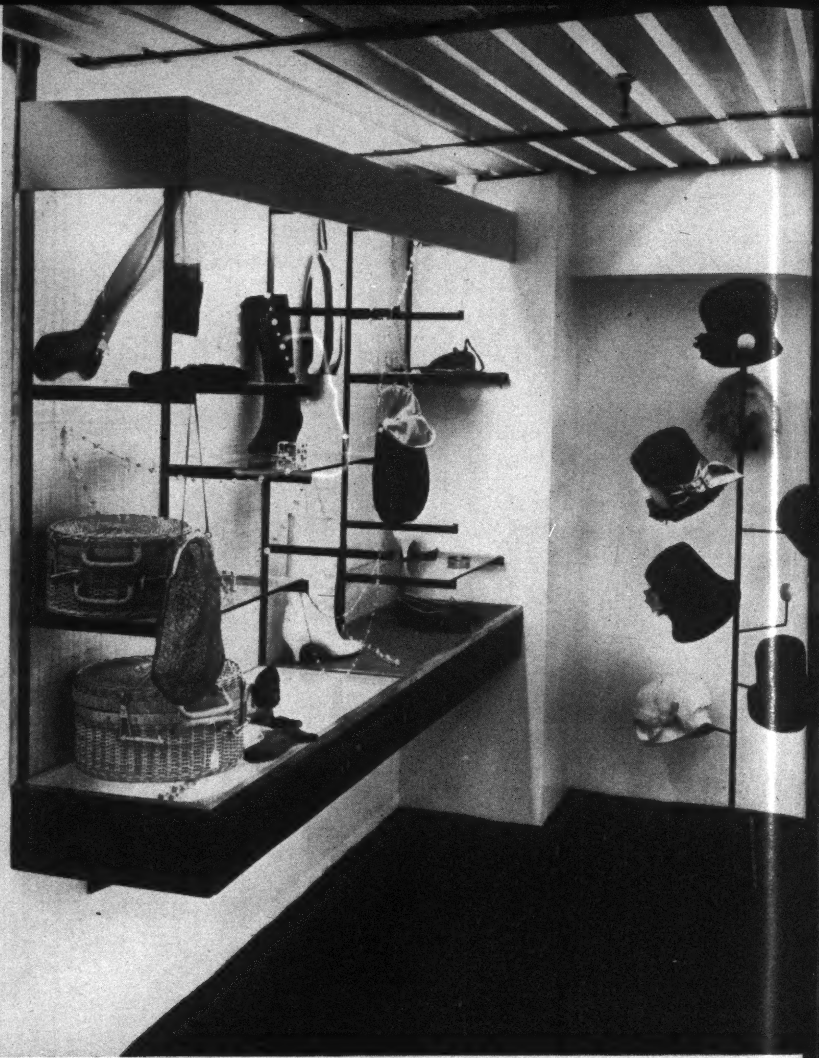

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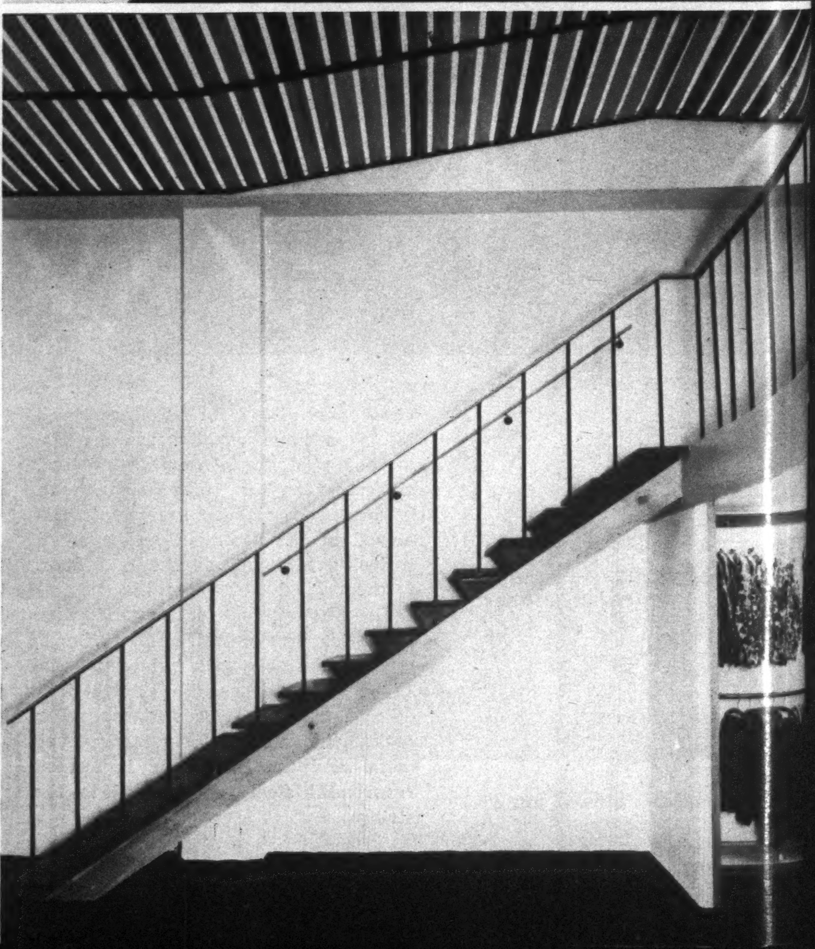

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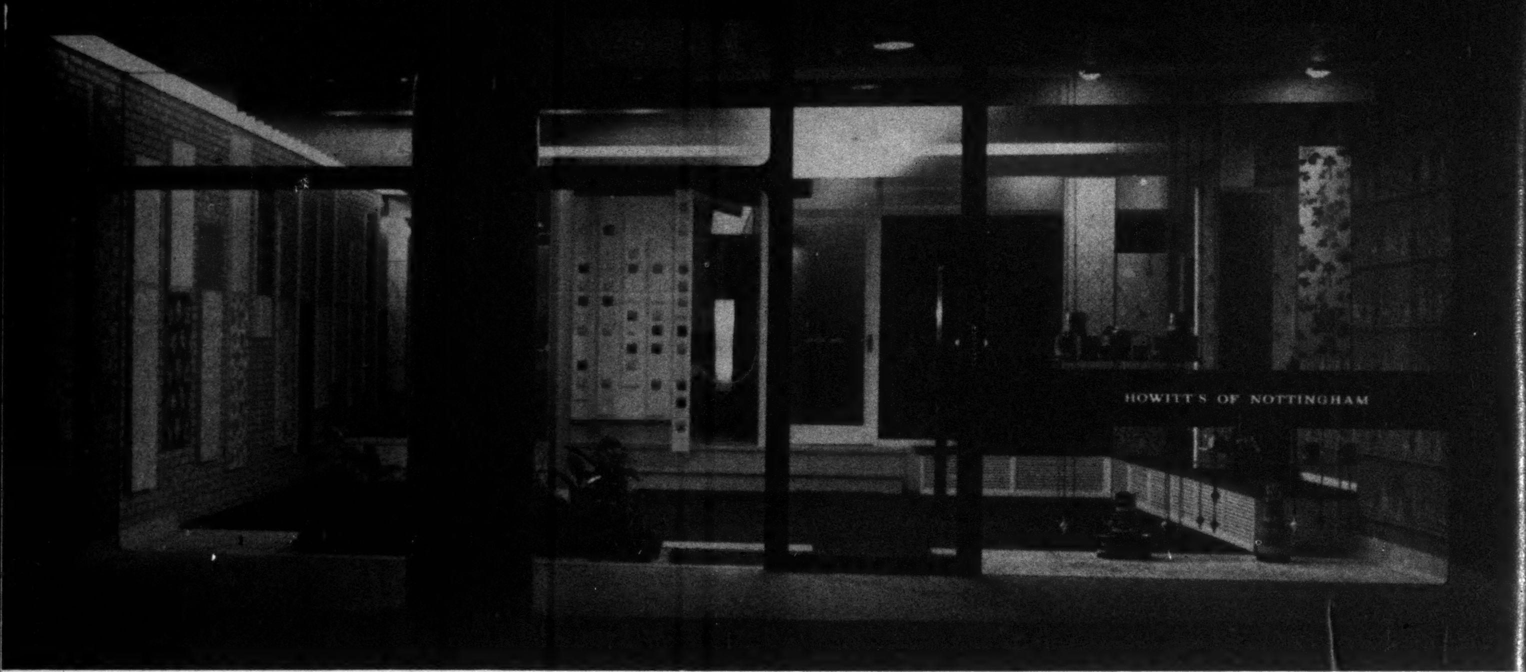
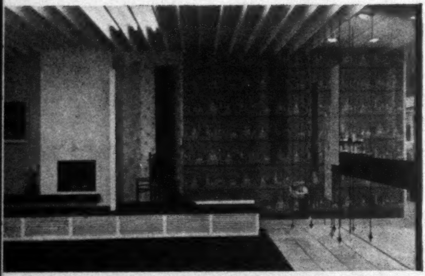


9

Showrooms in Nottingham

architects: James Cubitt and Partners



10

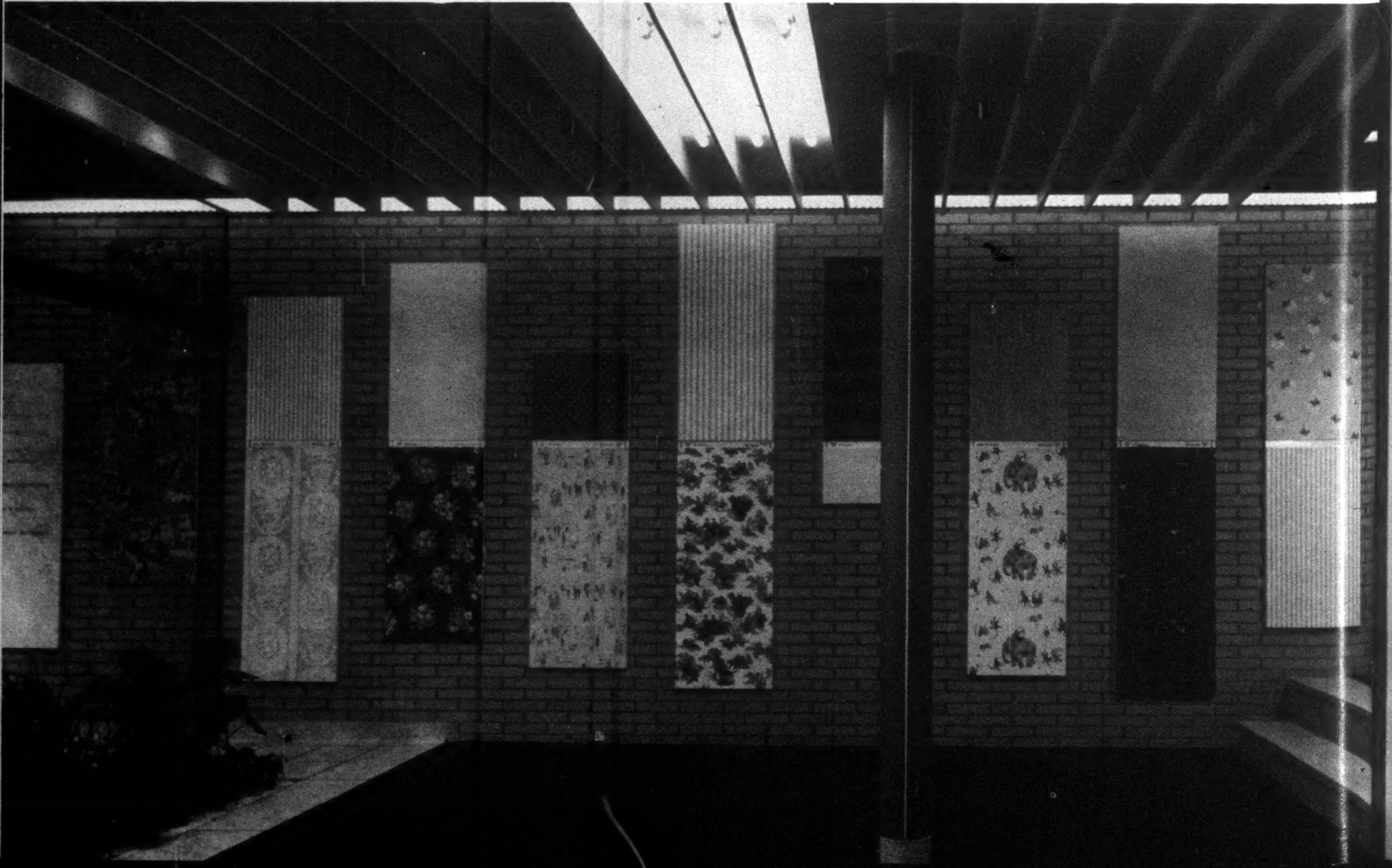
This L-shaped showroom, with a deeply recessed shop front, is in part of a Georgian terrace.

9, the shop front of galvanized steel in a combination of flat and angle sections, with the trade counter on the right and showroom on the left.

10, the display wall, intended to be seen from the street, with wallpaper panels suspended on weighted chains.

11, the display area, with wallpaper panels, showing the recessed lighting and the steps leading to the sales area at the back of the shop.

11



DR

design review

Danish light cylinder

1, *the table standard which Danasco are importing is a new range of light fittings from Denmark designed by Lief Michaelsen.*

The shade is a paper cylinder 20 in. high and 6½ in. in diameter capable of taking at least a 100-watt bulb. The paper is basically natural colour and is screen printed over blots and thin threads. After printing the threads are removed and a shadowy abstract pattern reminiscent of root forms remains. The pattern is slightly different on each shade giving the rare advantage of combining mass production and the individuality of craft work. A plastic finish makes the shade washable and fireproof. The final colours are white and muted versions of red, olive, purple and yellow.

The cylinder fits into a delicate square section metal frame with a matt black rustproof finish.

The retail price of the table lamp is about £8. The range also includes three sizes of pendant fitting and the floor standard, No. 14, dimly lurking in the background.

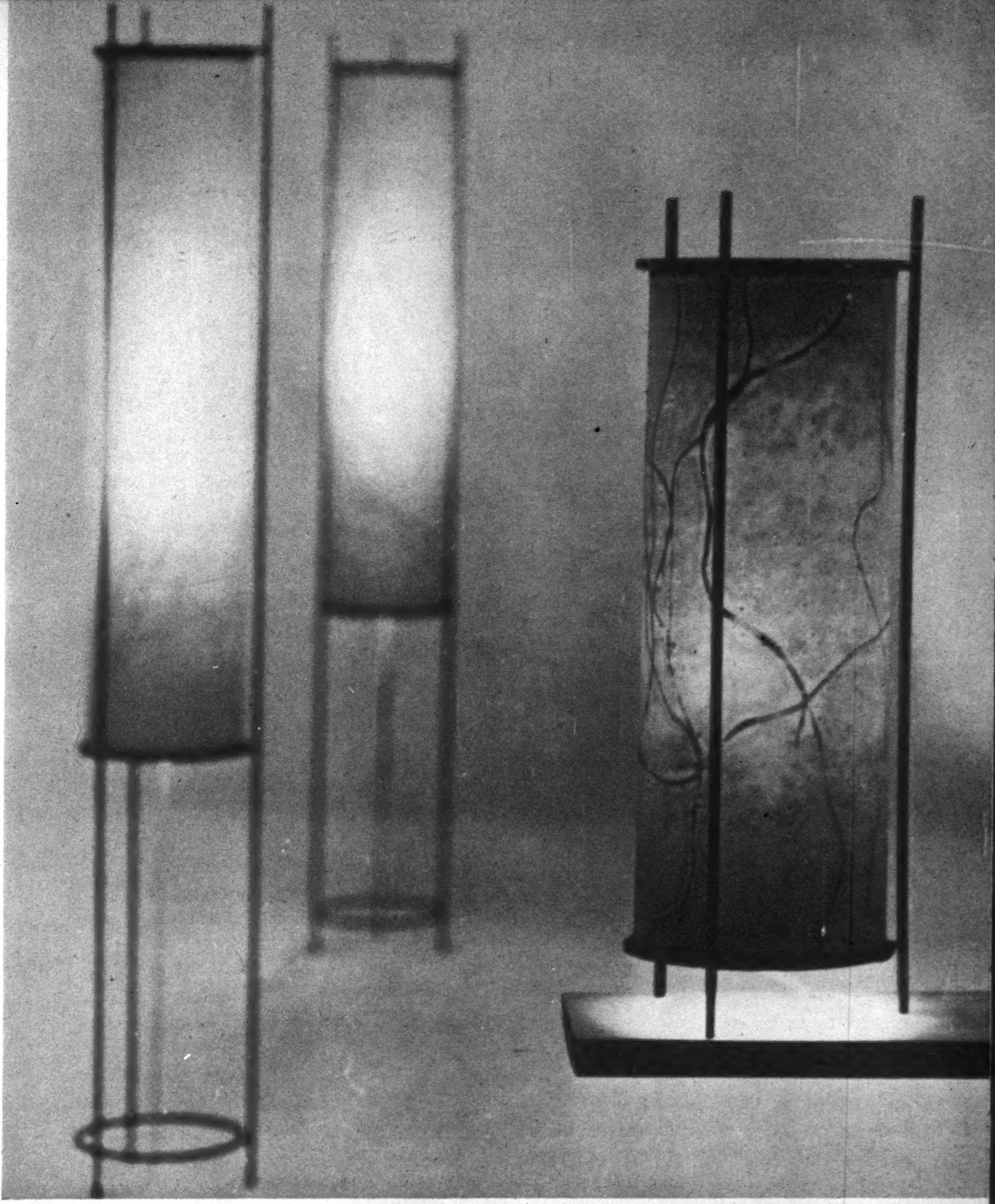
fibre glass fabric

2, *fibre glass fabric, which has been used extensively for 'glass curtains' in America for many years, is now on sale here. It is made by Vetrona Fabrics, a Tootal subsidiary, in some of the North of England cotton mills on modified looms.*

To make the continuous filaments glass marbles are fed into a platinum furnace and melted electrically. The molten glass is drawn away in fibre form, and for the Vetrona yarns 204 individual filaments are gathered together and treated with size to form a single strand. After weaving, the loom state cloth is brittle and unyielding and must be 'heat cleaned,' dyed or screen printed, and finally finished to protect the yarns and colours, and make the fabric pliable. The result is a fireproof, verminproof and fadeless fabric which the manufacturers claim will not shrink, sag or crease.

Vetrona is made in a variety of weaves, textures and colours and is also printed. The quality of design in the patterned versions is not good enough, but the plain nets and bouclé yarn marquisettes have wonderful qualities of translucence.

The striped marquisette with bouclé yarn is 46 in. wide, and the retail price is approximately 22s. 6d. per yard.



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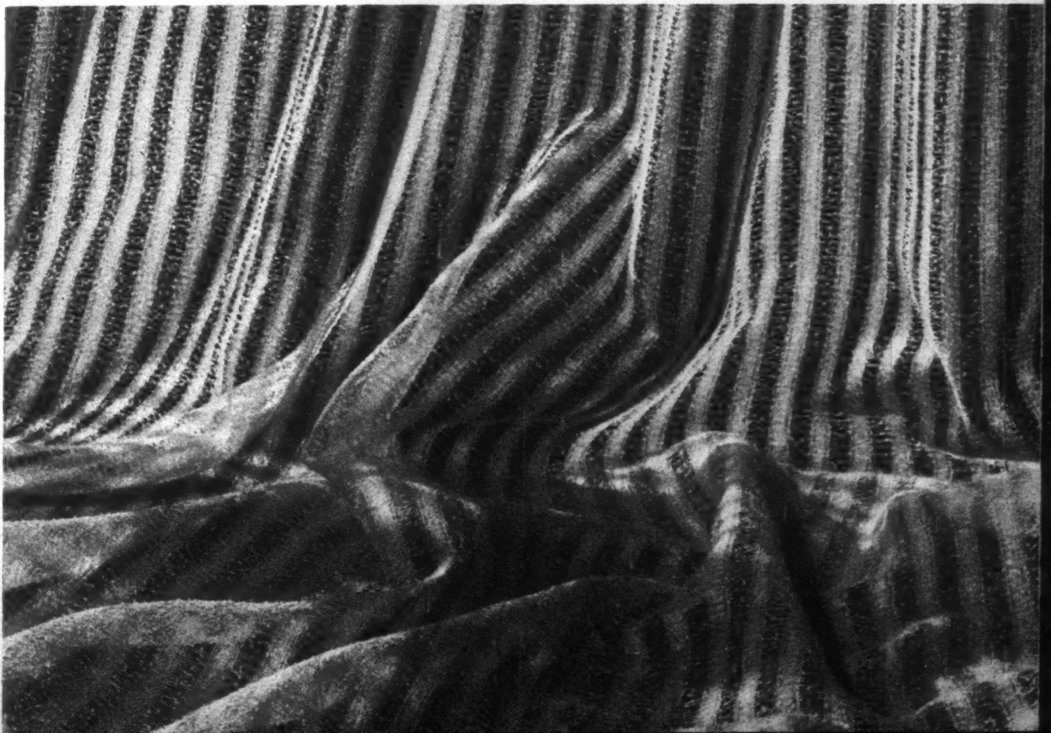

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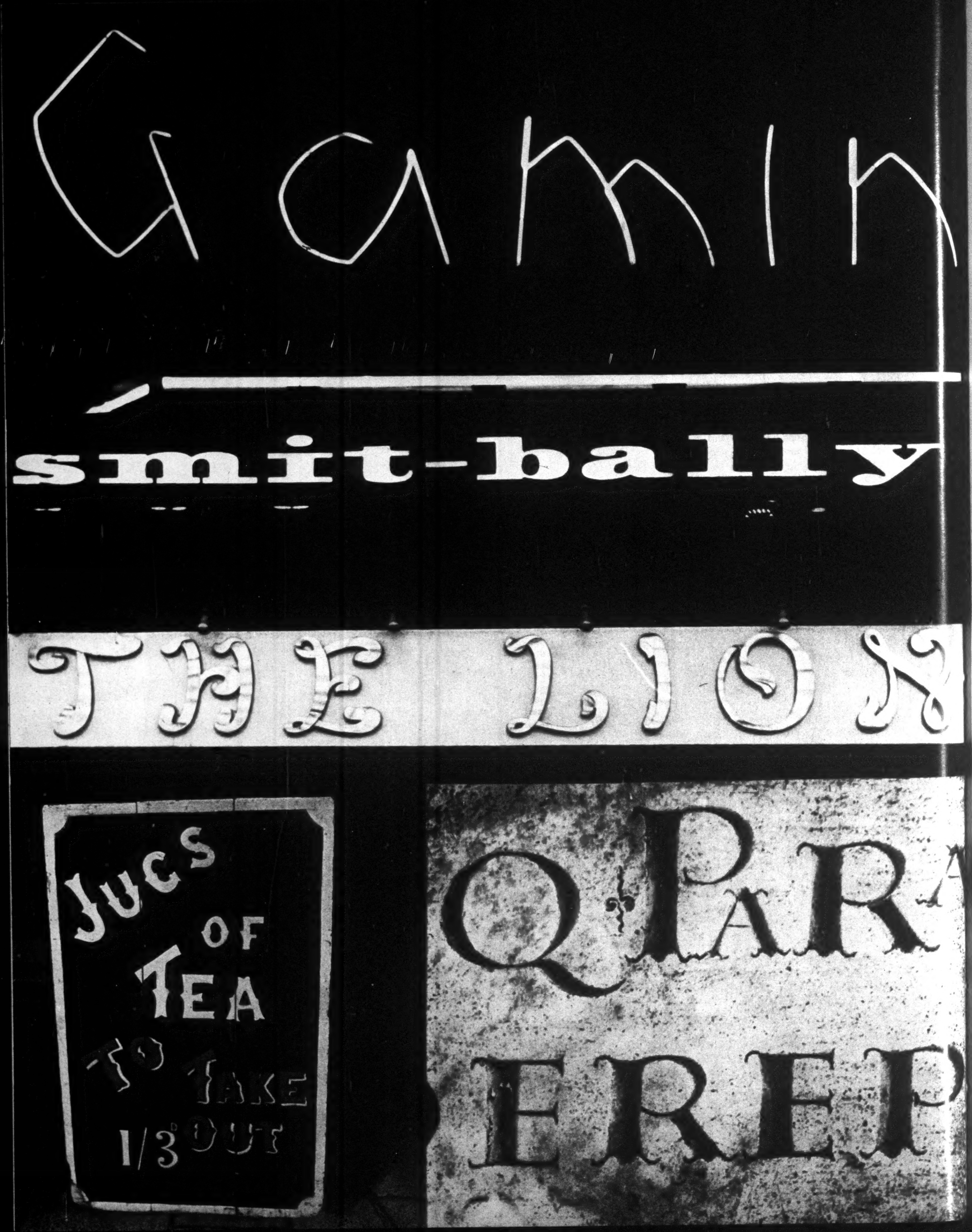
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Nicolete Gray

EXPRESSIONISM IN LETTERING

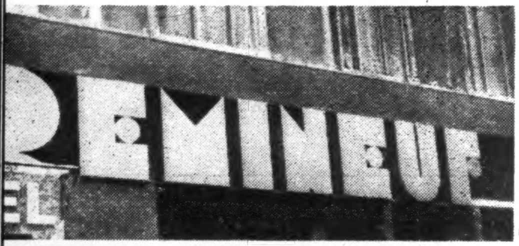
Varieties of intention and effect expressed in lettering ☞. 1, *from Nice,* 2, *from Brighton and* 4, *seen in Redcar, vividly suggest the invitation which they offer the reader. At the other end of the scale,* 5, *celebrates the triumph of the Church [Rome fourth century]; while* 2 *expresses the architectural idea of which it is part, echoing the horizontals of canopy and smart shop interior.*

A piece of lettering is not just an abstract design. The design is conditioned not only by the material from which it is made, and the purpose for which it is made, but also by the idea in the mind of the designer, which can never be purely formal because he must be aware at least of the meaning of the words which he is inscribing. In my general article of August, 1957, I reproduced examples to show how lettering is capable of being charged with imaginative content on the grand scale, but this same element has an immense gamut. It can range from the expression of a sense of objective reality (as in the Lindisfarne Gospels) to extreme subjective self-expression, or to that of the ephemeral, the commonplace, or finally it can exist in the almost purely functional, as in London Transport lettering in which function and design overwhelmingly predominate, but which has a dignity derived from a consciousness of fitness and clarity. In the opposite direction there is the lettering which sets out to make an impression on the reader. Such lettering can be intolerable, it may get at you against your will, but it certainly is not always so; it can be superb, 5. One is up against the difficulty that lettering which is predominantly expressionist is introducing something which does not correspond to aesthetic standards. A work can be very expressive and very effective without being good, and indeed while striking one as positively bad. For instance the sort of lettering which is repulsive itself but admirably expressive of the repulsive goods which it advertises, both of which clearly have their market and are by its standards highly successful in their purpose.

By what standard is it that we say that such lettering is bad? I find that there are three. First a standard of design; as a visual thing to be pleasing it must make at the least a pleasing pattern. The sort of lettering I have in mind, such as 6, gets its effect by some sort of distortion from the current normal, as does all expressionist lettering, good as well as bad. Norms have the great advantage that they have been worked out so that they do make reasonably satisfactory patterns. Innovation requires great skill; it is certainly lacking in 6. Secondly one demands sincerity; not necessarily very deep or very serious; for the vulgar, for instance, or the exuberant, provided it is whole-hearted, can undoubtedly be good in its way. Thirdly one must judge what is expressed; some things are not worth expressing, like timidity and smugness, both of which one sees a good deal; very many others express some half- or quarter-thought out idea, or a crudely exaggerated suggestion of a trivial one. Or, finally, though the idea in itself may be inoffensive it may be so through being inappropriate to its purpose or position, and one is back again at fitness, which is a criterion which applies to all lettering.

Having defined the limits of expressionism in lettering—and I would like to note that I have deliberately done this without reference to canons of good taste or of letter-formation and deformation, as such canons are most elusive if not meaningless—having thus decided on what grounds to exclude the bad I propose discussing examples which I find good. I want to discover the range of mood, and the means by which it is conveyed, and to discuss potentialities. You can start off by excluding two extremes; subjective self-expression, such as you associate with expressionist painting, and self-effacement, of the type which tries to eliminate the pause between looking and reading so that the looking is not consciously registered at all. Neither of these is normally desirable in architectural lettering. You might perhaps think that some public notices ought to come under the last heading; but when you come to consider examples you discover that these normally intend to convey their message with some sort of intonation, authoritarian as in *No Parking*, 7, or polite, as a foreigner recently pointed out to me, as usual in our *Please keep off the grass* notices. Or they are substantial physical objects like road signs and street name plaques, which cannot be eliminated.

To begin with the lowest charged examples that come to mind, I reproduce examples of Romans within a fairly small range of formal difference. In none of these do you feel that the designer has consciously intended to make his lettering express a definite idea (as for instance the designer at Temple Newsam intended to convey the spirit of his text), but all reflect his attitude to the job and the taste of his world. 8, reflects a great modesty and simplicity, also the unexpectedly tentative attitude of the lesser masters of the early Renaissance to the revolution against the Gothic in lettering. 9, of a century later in provincial England is far more brave and spacious, though also very consciously classical in a world where a variety of bastard forms were the current mode, but also not quite secure. 10, from Peckwater Quad, Oxford, is entirely secure, the wide forms and pointed diagonal serifs of his time are native to the designer, who uses them spaciously to make a superbly grand inscription; one could of course continue the catalogue almost indefinitely. Mood is something which we all recognize in works of art, more easily perhaps in the abstract than in the representational.



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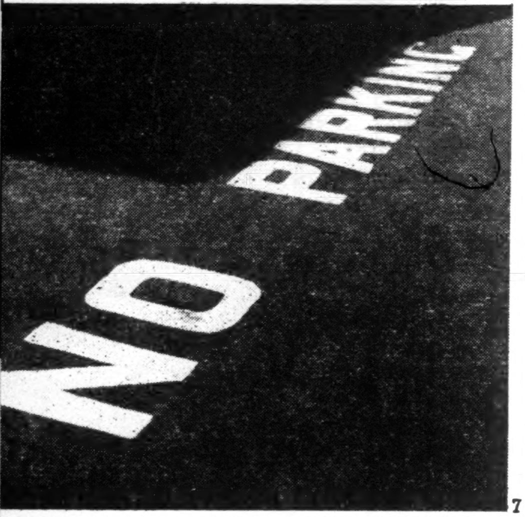

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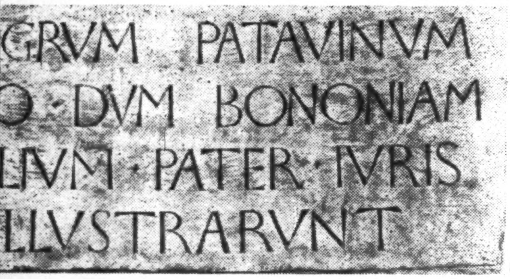

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CAIVS POSVIT SAPIENTI

9

10

Next come the examples where one feels the letterer would, if he were pressed, admit that he did wish to convey an idea and make an impression but probably never formulated as much to himself. It is the artless pride of Mr. Gibbons' work, 11, which makes it far better than competent, bored professional sign painting. In the same category is the unpretentious but loving epitaph of the Roman boy, 12. One should note, however, that both are rather well designed. Also I think to be classed with these is *The Lion*, 3. This must be a style of lettering chosen, perhaps from many others, out of a book. Its effect is gained from the curves and bows of the simulated material, a common Victorian (and Elizabethan) conceit. You can see why the landlord chose it; it is jovial and welcoming as befits a pub, and the letters have also a lion-like majesty while within the O waves the tail of the beast. It is impossible to find a modern example because there is not now a range of this sort of letter to choose from.

The Lion shows the two means most naturally used to make lettering expressive; the exaggeration or alteration of forms in a purely abstract way, in this case by curving all the lines, and the introduction of more or less realistic suggestions like the tail. In the latter there is scope for wit but it needs a very light touch. The nicest example that I know is *Waterproofers*, 13, in Piccadilly; a clever modern example is, 14, with its wing ideograph and italic flight, which are becoming almost a formula for air lines. The suggestion in *Greek Line*, 15, of Greek script through even-line and diagonal terminations is perhaps more subtle in idea but much less interesting in design. In this direction we very soon reach the limits defined in our second paragraph. The alternative method is very much more interesting and more repaying.

Examples of what were surely conscious attempts to express and to impress diverse ideas and feelings through lettering are shown 1, 4–7 and 13–16. 5, is a wholly new style conceived and accepted as an official expression of the church triumphant at the end of the fourth century. It was never effectively used after the disillusion of the first sack of Rome. On a more familiar level *Francaise et Anglaise*, 16, is a clear expression of the boulanger's idea of the difference between French and English, and the lay-out of *Jugs of Tea*, 4, is intended to suggest modest but friendly refreshment. In all these examples, as in *No Parking*, 7, the impression is made by purely abstract means. The existence in people's minds of current norms of familiar shape and proportion means that slight deviations are immediately significant and enable the designer to get an effect through very subtle means; through elongation, exaggeration of weight of line differences, unexpected tilting of horizontals; through differences in terminations, extra-neat, or swagger, or crudely blunt. These little things which are the irreducible symbolism of all abstract arts, are in lettering things which have an immediate and also perfectly popular connotation. There is nothing high-brow about most of these examples.

These effects are made out of letter formations. They are not however made necessarily out of letters designed for each particular occasion. It is the intention with which they are chosen and used which is quite as important. A sensitive use of a good standard letter can be quite as good if not better than an individual design which is an artist's job; unsuccessful attempts account for most of the worst lettering that one knows. Whereas *Cold Stores*, 17, made up probably of stock period letters is most expressive, the tight curled S's make you feel quite chilly, and the difference between *Beer Bay Tea Rooms*, 18, and *White Horse Hotel*, 20, give you a vivid impression of very different establishments, though the cast letters used in both cases are the same, actually rather mannered, design.

In all these categories of expressionism the architectural letter is at a disadvantage. It is at least semi-permanent and cannot indulge in the sort of vagaries which are amusing or moving in an advertisement or in a book or even a museum, but which would in a permanent form on our streets be intolerable. The real architectural opportunity for flamboyant expressionism is in the illuminated letter, but so far it has been used with little skill or daring; the most interesting experiments (see AR, July, 1958) have instead been in formal directions. 1 (and 18) is a suggestion of the sort of possibility that I have in mind, which offers immense scope for development. In another way however the architectural letter has unique potentiali-

[*continued on page 276*

6, ***outside limit to expressionism; French.***

7, ***modern authoritarian lettering.***

8, ***an early Renaissance inlaid inscription.***

9, ***the Gate of Wisdom, Cambridge,*** **1567.**

10, ***Christchurch, Oxford,*** **1707.**

11, ***Westport, Ireland.***

12, ***Roman modesty, first century*** **A.D.**

13, ***suggesting water-drip, Piccadilly,*** **1902.**

14, ***suggesting flight, Bond Street.***

15, ***recalling the classical, Piccadilly.***

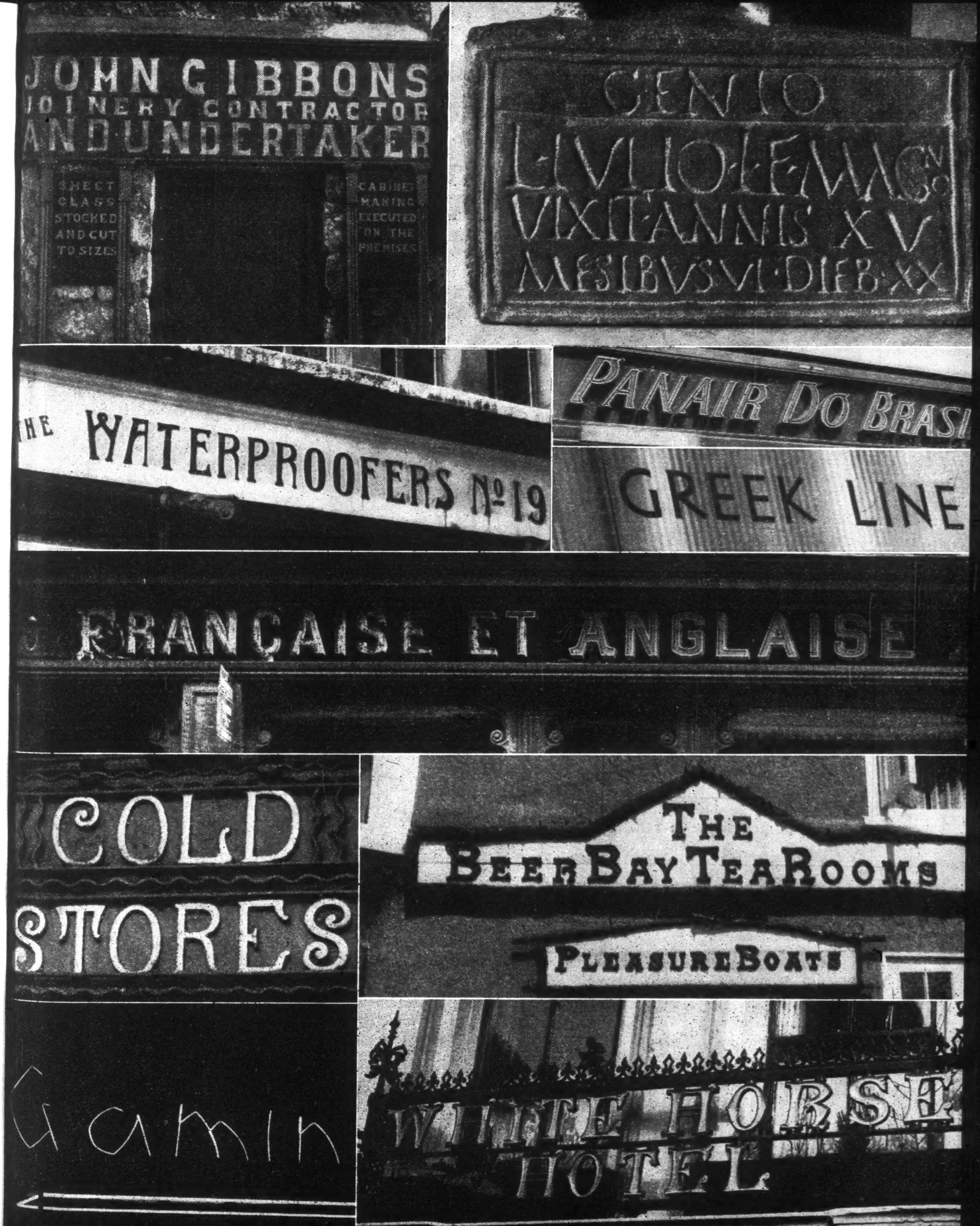
16, ***contrasting simulated surfaces, Paris.***

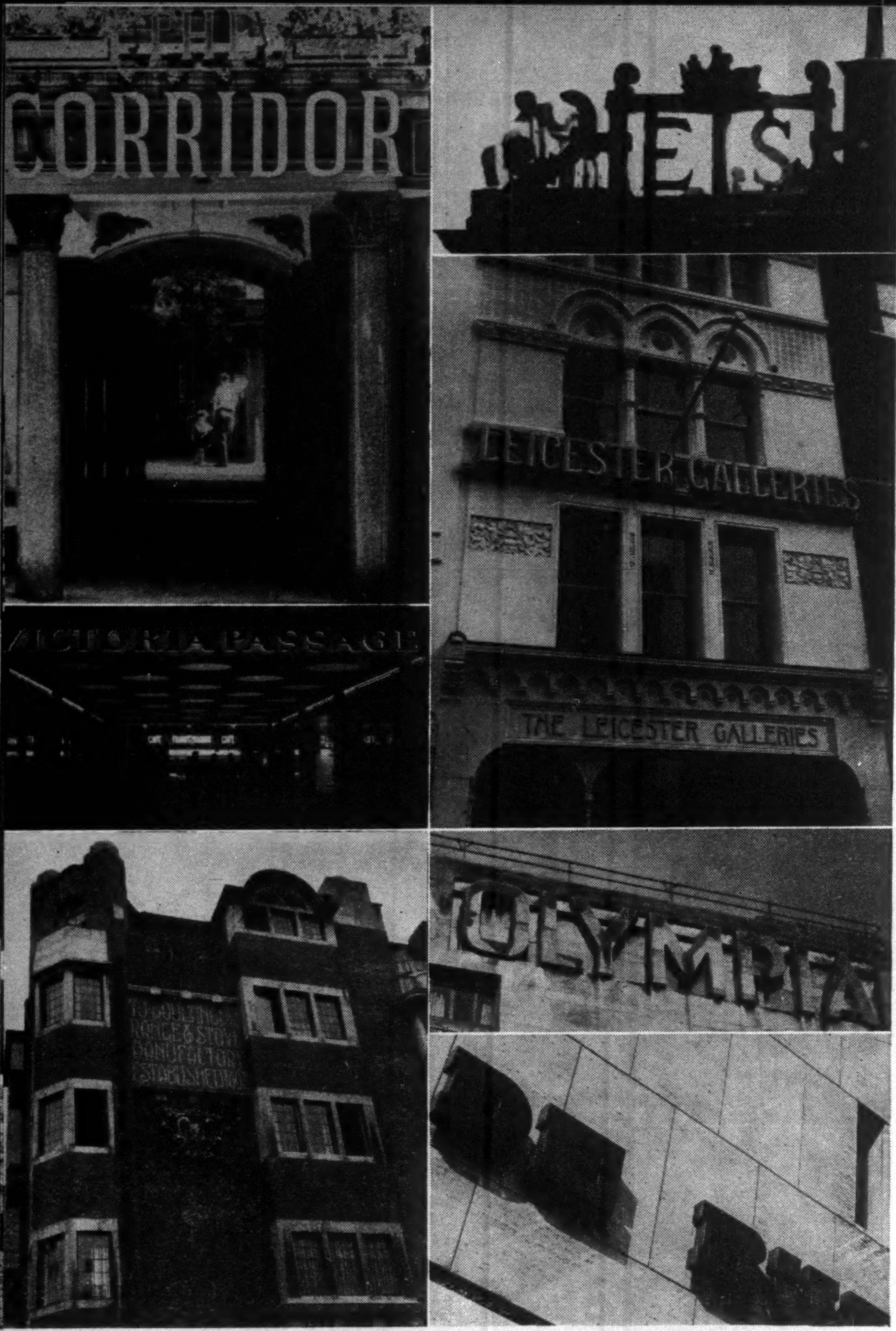
17, ***Liverpool.***

18, ***neon shop sign.***

19, 20, ***contrasting use of the same stocky Victorian letter.***

11	12
13	14 15
16	
17	19
18	20


JOHN GIBBONS
JOINERY CONTRACTOR
AND UNDERTAKER
SHEET GLASS STOCKED AND CUT TO SIZES
CABINET MAKING EXECUTED ON THE PREMISES
GENIO
L·IVLIO·L·F·M·AG·N
VIXIT ANNIS XV
MESIBUS VI·DIEB·XX
HE WATERPROOFERS №19
PANAIR DO BRASI
GREEK LINE
FRANÇAISE ET ANGLAISE
COLD
STORES
THE
BEER BAY TEA ROOMS
PLEASURE BOATS
Gamin
WHITE HORSE
HOTEL



21 | 22
23 | 24
25 | 26
  | 27

21–28, *lettering expressive of aspects of the buildings of which it forms part.* 21, *Bath.* 22, *Hardwick Hall.* 23, *Munich.* 24, *London,* c. 1902. 25, *London.* 26, *London.* 27, *Rotterdam.*

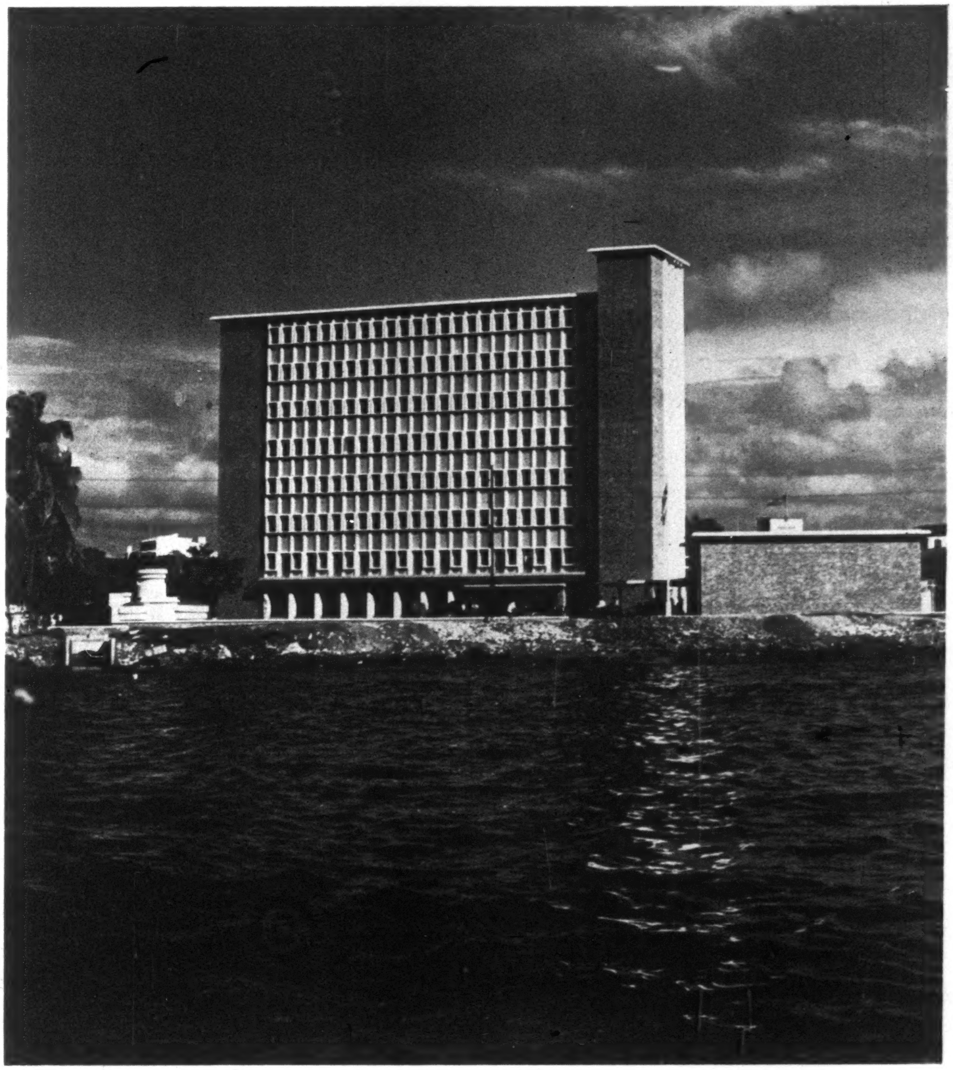
continued from page 274]

ties. It should of its nature be part of a whole. In fact it has often to be stuck on to some existing building; even so, even if the building is bad and unsympathetic the lettering will be better and more effective if it is adapted to the architectural motives in which it is involved. The most important lettering, the new lettering that we need to create is that which is conceived as part of the architecture to which it belongs, which from the expressionist point of view therefore epitomises the idea of the building which it should also embellish. In a very simple but complete way this is done at *the Corridor*, 21, at Bath. The entrance way is, I suppose, earlier than the lettering and not perhaps sympathetic in its proportions to the designer of the latter; he has chosen to disregard the obvious procedure of engraving on the architrave. Instead he has chosen to epitomize not the opening but the passage. He was lucky of course in the letters of *Corridor* but as formed one after another with their squared curves and rounded section they echo the enclosed extended space beneath them. Their scale and spacing, the whole width of the architrave, but detached, with space again behind, is also masterly, contributing to the same idea. *Victoria Passage*, 23, is a contemporary example from Munich of a horizontal working out of the same theme. Searching for more monumental examples one notes that the classical style naturally permits of only a very limited range of expression, as of technical experiment. The interesting examples come in the transitional periods. The initials of Bess of Hardwick on the sky-line of Hardwick Hall, 22, the first of the English balustrade letters, correspond both to the grid of windows which is the outstanding characteristic of the house, and to the dominating personality of the builder. With the late nineteenth century however comes the beginning of the real opportunity; the practical demand for almost every building to be labelled, coinciding with an extremely fluid and experimental typographical tradition in lettering, set the architect a problem to which the easiest and most contemporary answer was expressionist lettering. The type used was that which seemed sympathetic to the style of architecture chosen; as for instance that of the Leicester Galleries; the Venetian style, obviously suited to an art gallery, is echoed by the compressed inscription, and by the nice piece of iron work over the door, 24. It is the mood which is echoed, by a purely contemporary letter, not a revived Venetian. Boultings mosaic inscription of 1903 is a much more integral and original example of the same idea, 25. Finally I give three modern examples; Olympia, where the rather grim building is enlivened by the rather grim great letters, 26; and two of very different scale, but both masterly, from Rotterdam, 2, and 27. In 27 the heavy square Egyptians echo the slit windows in the vast cube of the Byenkorf, while their mahogany colour and silkiness contrast with its texture. On a more modest scale the expanded forms and drawn out serifs of 2 repeat the lines of the shop interior behind it and emphasize its recession; both the lettering and the interior being forms created by artificial light.

The relation between this sort of lettering and the history of the modern Movement is a question which I propose to work out in another article.

current architecture recent buildings of interest briefly illustrated

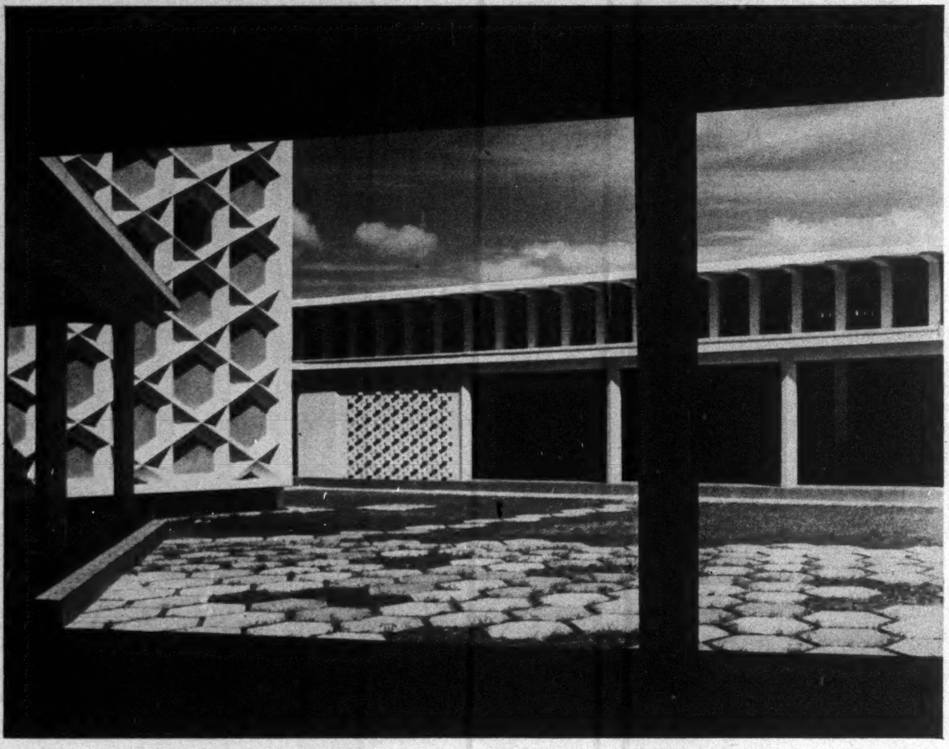
1, *the residential block and assembly hall from the sea.*



SEAMEN'S HOSTEL AT SINGAPORE

ARCHITECTS: W. W. WOOD SONS AND PARTNERS

The club, which is sited on the foreshore close to the harbour and the centre of Singapore, provides accommodation for seamen in transit and recreational facilities for local seamen. The dining room seats two hundred and has separate kitchens for Chinese, Muslims and Hindus. Owing to the different structural and planning requirements, the units of the club were planned separately, with the residential block sited to obtain the maximum benefit from the prevailing winds, and to avoid the morning and evening sun. Facing bricks and glazed tiles have been used as external finishes to reduce maintenance costs;

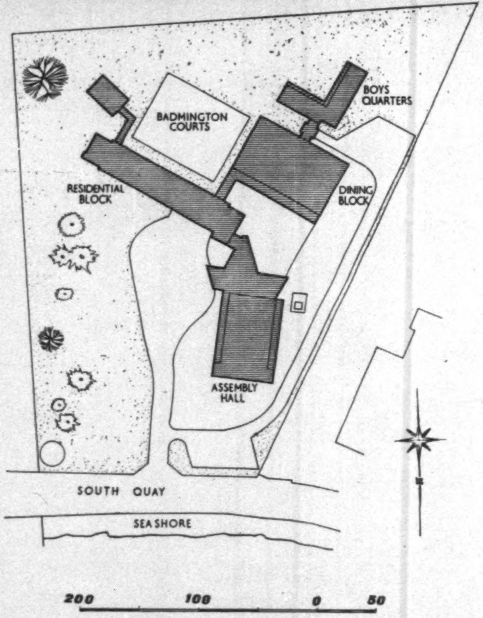


2

Seamen's Hostel in Singapore

2, the dining block seen across the courtyard. The fixed metal windows to the clerestory stop 12 in. short of the ceiling for permanent ventilation.

3, the facade of the residential block, with internal reveals painted alternately terracotta and grey. External reveals are white, columns and the underside of cornices, daffodil yellow.



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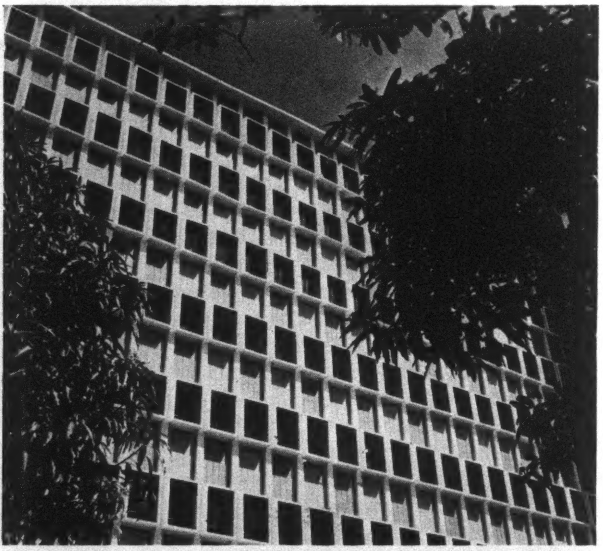
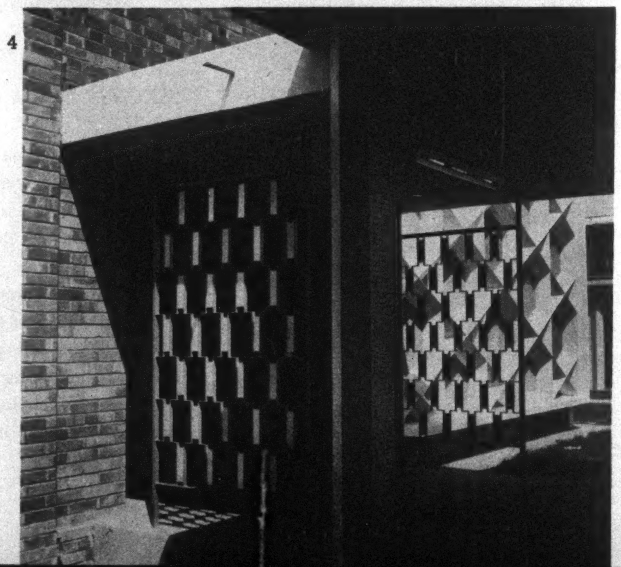
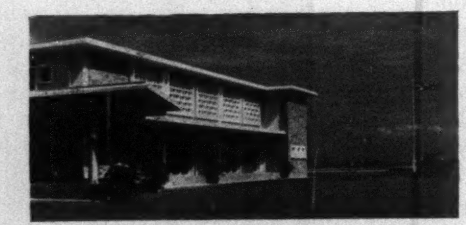


internally all plaster has been treated with a protective silicone solution. Local hardwood is used for the parquet flooring in the assembly hall and the first floor of the residential block. Bedroom floors are of asphalte tiles, all other floors are patterned mosaic. Flush doors and bedroom partitions are faced with laminated plastic. Room partitions on the third to seventh floors have timber louvres above a height of 7 feet to provide cross ventilation.

4

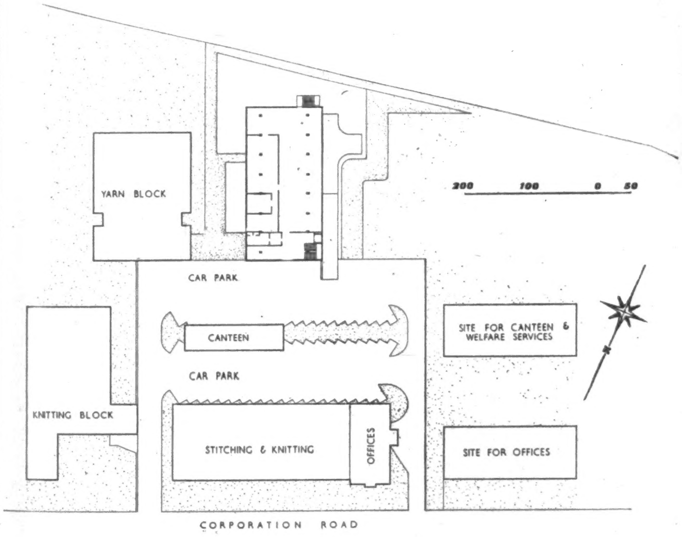


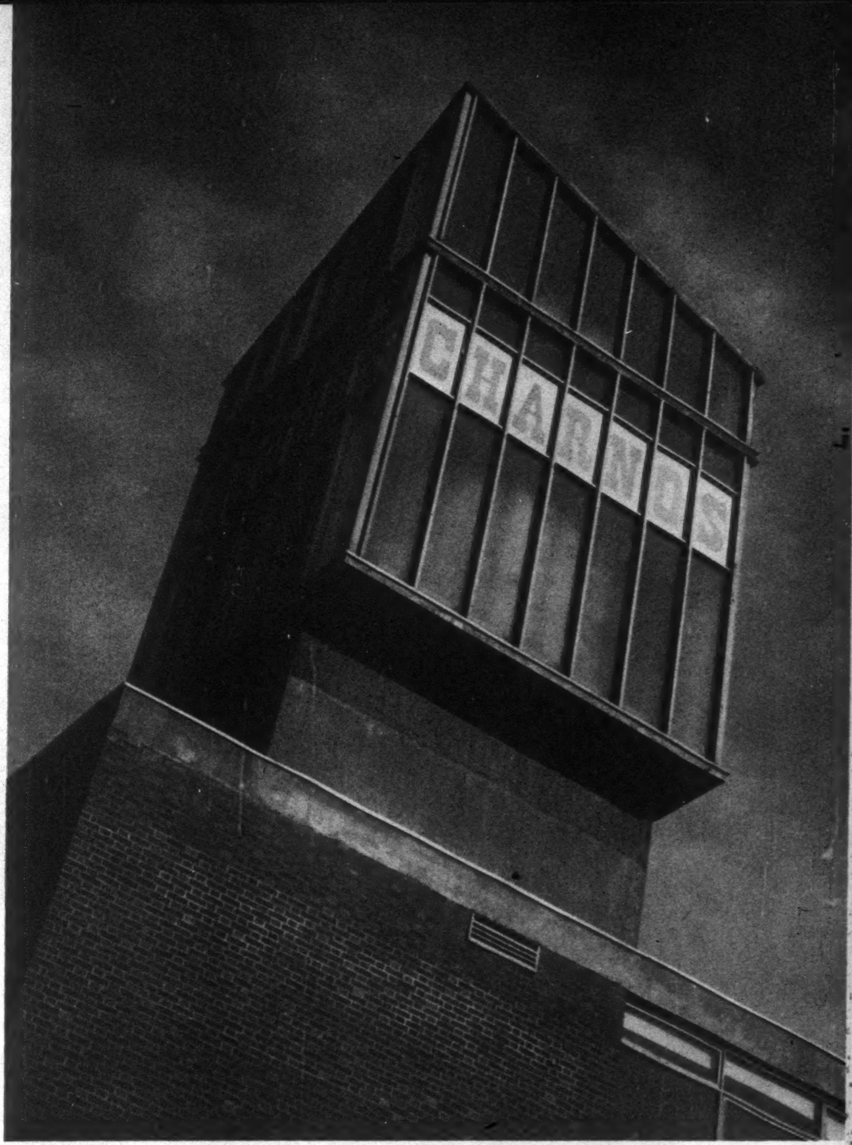


5

4, the link between the residential block and foyer. The screen has alternate solid panels of blue and yellow laminated plastic, with the mosaic column in the same colours.

5, the west front of the assembly hall.


YARN BLOCK
200
100
0
50
CAR PARK
CANTEEN
SITE FOR CANTEEN & WELFARE SERVICES
CAR PARK
KNITTING BLOCK
STITCHING & KNITTING
OFFICES
SITE FOR OFFICES
CORPORATION ROAD

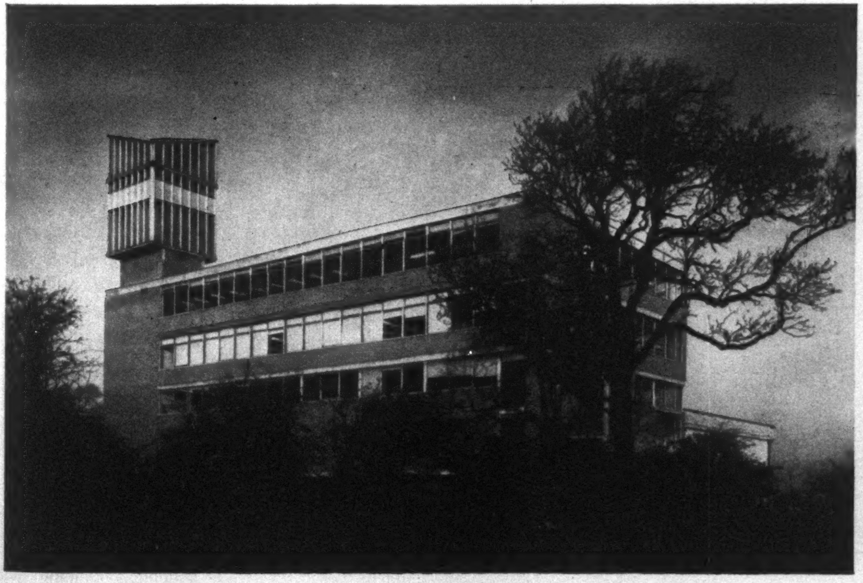


6, the tank tower is supported on four columns and cased with western red cedar.

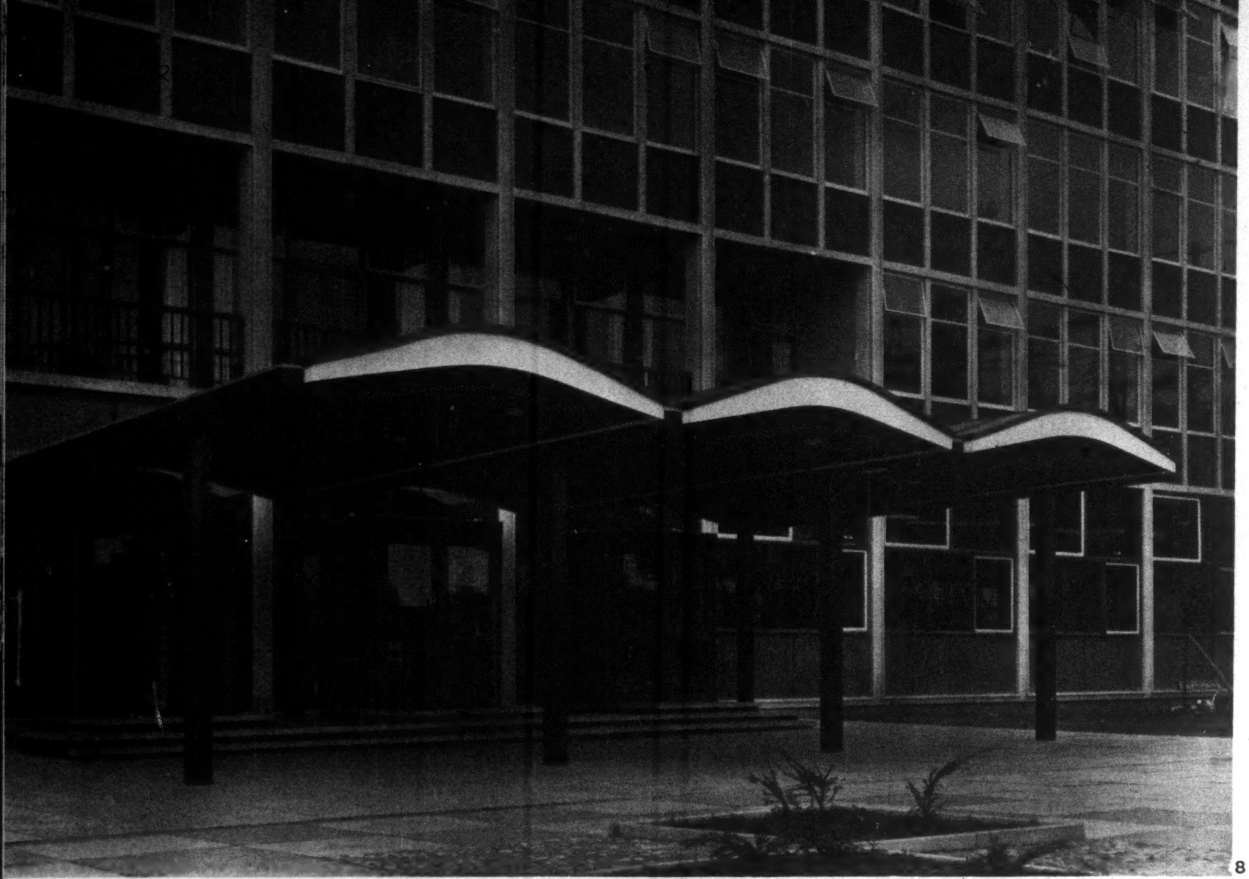
FACTORY AT ILKESTON

ARCHITECTS: CLARKE HALL, SCORER AND BRIGHT

7, general view from the north west.



Built on a site which slopes to the east, this extension to a stocking factory houses the dyeing, finishing and despatch departments, and the boiler house. The top two floors are used for light machinery, sorting, grading, inspection and wrapping. Finished goods are stored, packed and despatched at mezzanine level. The dyeing machinery is on the ground floor, with the boiler house, fuel store and service area below. The construction is of *in situ* reinforced concrete, with two rows of columns supporting main beams with cantilevers. Floors are solid except in the dyehouse, where they are hollow tile to accommodate services. External cavity walls are in fair-faced red brick; the external staircase and retaining wall are independent reinforced concrete structures. The roof is finished in 1-in. cork three-ply roofing felt with white spar chippings. Columns, beams and concrete ceilings and plastered walls are finished with emulsion paint.

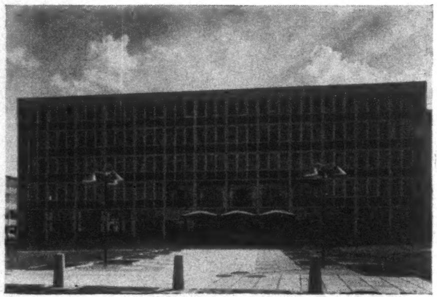


8

TECHNICAL COLLEGE AT COLCHESTER

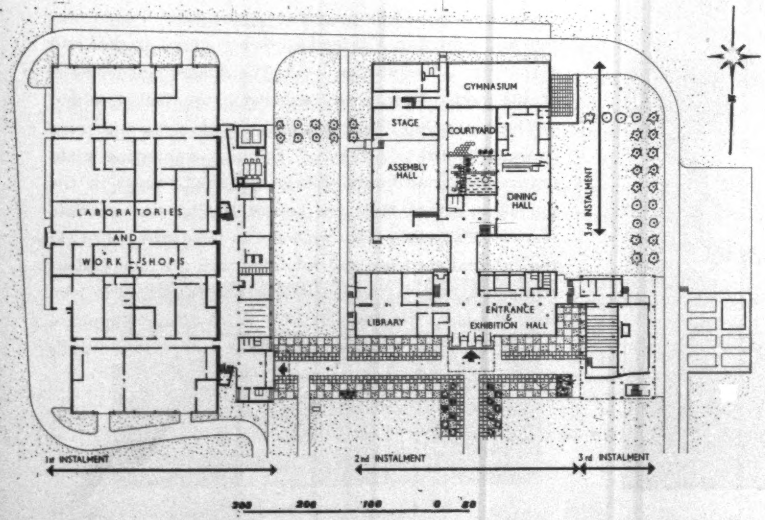
ARCHITECT: HAROLD CONOLLY, ESSEX COUNTY ARCHITECT

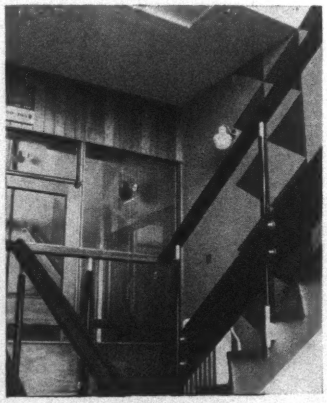
This is the second stage of the college; the first stage was illustrated in the AR in August, 1954, and the third stage should be completed by September, 1959. The building is of five storeys with an *in situ* r.c. frame and floors. Solid r.c. gable walls and lift well act as stiffeners to the main structure. The curtain walling has main members of Portland stone with an infilling of metal windows with precast concrete slabs under. The roof is asphalte finished. Floors are of missanda blocks generally, with rubber flooring in the corridors and cork tiles in the Principal's rooms, boardroom and library. Joinery is in West African mahogany. Walls are plastered and painted; heating is by means of low pressure hot water boilers and radiators.



9

8, the wide entrance canopy is structurally free of the building and carried on a welded steel frame.
9, general view of the college from the north.
10, the staircase has green and black terrazzo treads and mahogany handrail.


GYMNASIUM
STAGE
COURTYARD
ASSEMBLY HALL
DINING HALL
3rd INSTALMENT
LABORATORIES AND WORKSHOPS
LIBRARY
ENTRANCE & EXHIBITION HALL
1st INSTALMENT
2nd INSTALMENT
3rd INSTALMENT
300
200
100
0
50



10

The name miscellany implies, of course, an architectural miscellany—one that will include subjects which, though marginal to architecture, are nevertheless vital to it.

miscellany

EXHIBITIONS

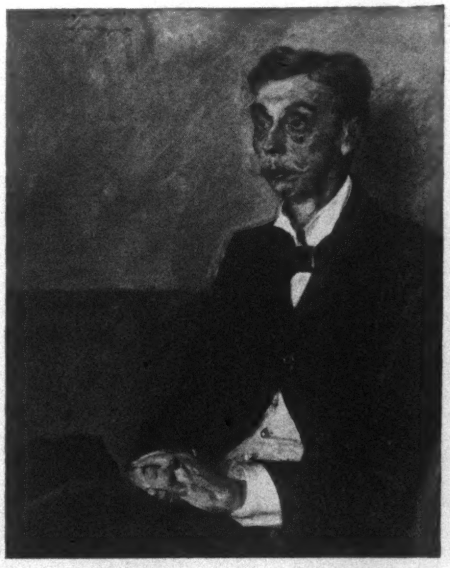
PAINTINGS

Before the exhibition called 'Hundred Years of German Art' came to the Tate Gallery in 1956, *Lovis Corinth was not much more to me than a name attached to some reproductions of draughty-looking landscapes* in a distressingly muscular and belatedly impressionist manner. I knew that he was from East Prussia and that he died in the twenties when he was in his late sixties. I knew too that some of his paintings had been granted the distinction of being removed from German museums in 1937 and put into the 'Degenerate Art' show in Munich, but this didn't seem to make sense except as a case of Nazi eating Prussian. Even after the *Hundred Years* show, when I had to acknowledge that Corinth was a highly gifted painter, I thought of him as one of those unexportable geniuses who are geared to some of the less agreeable collective traits of their own countrymen, so although I looked forward to seeing the retrospective exhibition of his work which was recently brought to the Tate under the auspices of the Arts Council, I thought it was just the sort of exhibition that the officials of one country would be likely to offer to the officials of another, and I felt that Mr. Gabriel White was overdoing it a bit when he said that it was 'long overdue.'

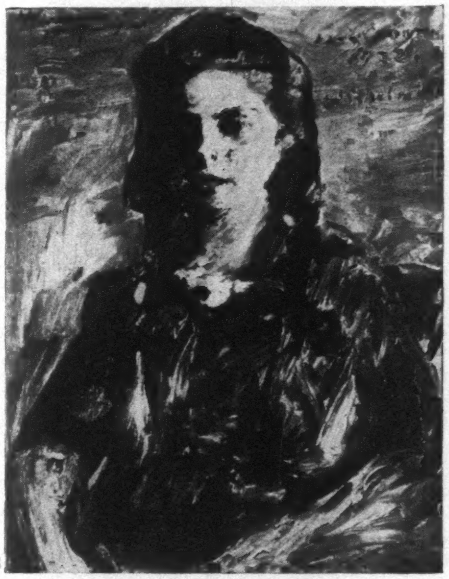
Now that the show has come and gone I am in a humbler mood about him, and feel less inclined to blame him for the fact that I have little sympathy for his showy, blustering kind of vitality, but I am still wondering what twist of Nazi policy confused him with the 'degenerates.' He sometimes put a jerk into reality but never set out to distort it; his virility was never in doubt, and his paganism was of a kind that anyone who has ever been wildly drunk can easily comprehend. Perhaps some spiteful Academician told them that his later work was expressionist. If so, post-war German critics have taken it to be the best way of praising him, for they now tend to place him alongside such painters as Beckmann and Kirchner and call him one of the great masters of Expressionism.

He seems to me to be a great realist at his best. The master he had in mind throughout his career was Franz Hals. He has something of the same exuberance and force; his portraits have a similar broad truthfulness; his brushstrokes sometimes have an almost equal dexterity and vitality. His palette was lightened by the example of Impressionism. He was not an Impressionist, but he painted many landscapes in the open air with a kind of excited literalism. There is a lot of movement in them—especially in the famous Walchensee series, painted in the so-called expressionist period—but it springs far less from the systematic study of shifting cloud formations and changing conditions of light than from the slap and wriggle of paint marks made for their own hearty sake. Are the critics referring to Corinth's obvious delight in manipulating paint when they speak of him as an Expressionist? There is surely more to Expressionism than that. I suspect that they are being influenced by recent developments in painting, and that at this rate they will soon be finding intimations of 'abstract expressionism' wherever there is bravura in the manipulation of paint. If Corinth intended to identify his landscapes with some highly-charged emotion he did not succeed. His landscapes remain vividly banal.

In a picture called *After a Bathe*, which is a brilliant, swiftly executed open-air portrait of a half-naked woman, there is a similar conflict between what the artist observes and how he paints; between the warmth and serenity of the woman he depicts, and the restless activity of the brushmarks. The paint wriggles all round her and over her with a kind of impatient possessiveness, but the fact that in this context Corinth's characteristic brushwork acquires an erotic significance simply indicates that this is another case of excited literalism.


1

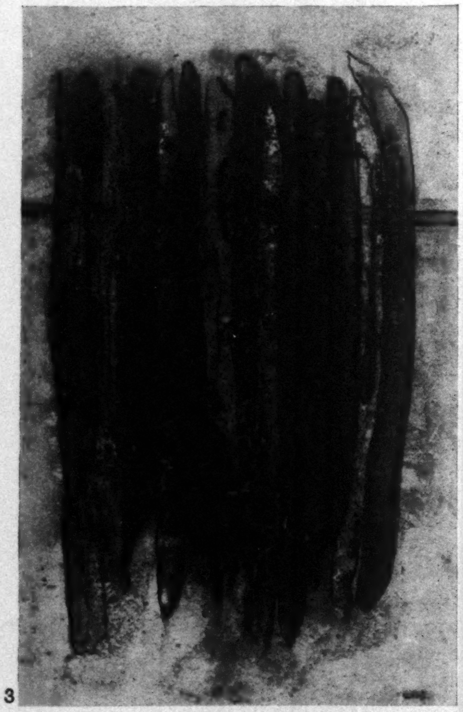
Corinth was a fine portrait painter in every phase of his career. His portrait of Edward Count Keyserling, uncle of the philosopher, 1, painted in 1900, is a superb example of verisimilitude. It owes part of its fascination to the sitter, who would have been a glorious find for any artist who liked painting people as he found them, but no one could deny that Corinth was equal to the occasion. His portrait of his daughter, 2, painted in 1922, three years before his death has greater stylistic interest for us. It has a nakedness of pigment and emphasis of gesture that is more in tune with contemporary sensibility than the tonal realism of the earlier portrait, but it does not disclose greater psychological insight, nor does it show any sign of being knocked out of shape by emotional stress and strain. It is a fine and sober portrait, painted in a vigorous manner from which all showiness has finally drained away.


2

There remains the remarkable series of self-portraits. He was not afraid to make faces in the mirror to recapture the outward evidence of his excessive exuberance, and a painting of himself in a state of frantic joy is called *Self Portrait as a Bacchanalian;* but he is still painting from the model, and the violence and distortion are already in the mirror image. He is a great painter because of his uninhibited response to the living human presence. All the same, I still think that most of his pictures would have returned to Germany even if he had been exhibited here when his work could be bought.

It is not that we are unresponsive to German art. Far from it. Quite apart from our love for Bavarian rococo and our hatred of the work of some of the great Expressionists, there is a kind of painting which many of us find marvellously and satisfactorily German. It has an air of secrecy, a touch of the necromantic. It looks as if it might have been done by the light of a candle in a lonely hut in the middle of a dark wood. Some of Dürer has this air of secrecy, and much of Altdorfer. In our own time it is a characteristic of a good deal of Klee and of the German work of Feininger. It is powerfully present in Max Ernst's forests, and, above all, in the small watercolours of Wols. Wols, who painted in Paris and died in 1951 at the age of thirty-eight, is one of the most mysterious painters of our time, and I find it impossible to account for the way in which one of his tiny images can dominate a mixed exhibition. He is never shown in anything but distinguished company, but his work can make all the other exhibits look shallow and diffuse. This happened in the elegant show at Arthur Tooth & Sons called *Actualités*. The watercolour by Wols was 8¼ in. by 5 in. and it was entitled *Longs Batons Verticaux*, 3.

In spite of its size, it caught my eye straight away. It is a bundle of long narrow 'things' which appear to be skewered on to a transparent rod. Some of these 'things' are brown in colour, others are dark red or dark blue, and they are bathed in a dusky orange radiance. Things have happened to these things. One or two of them have been pierced and have gaps in their side, some have abrasions along their entire length, some are scabbed, some have patches of soreness where the skin has peeled. Some are dusty, others are bright and moist. There are differences of substance: some look rather like dead earthworms, others might be plant tubers. They could be hanging in the corner of a witch's kitchen; they could be the remains of a child's cruel game. When I turned away, the image bored into my back and I felt compelled to return to it again and again, to stare without comprehension, but with puzzled delight. Some of its fascination is due to the precision, the inordinate care, with which Wols paints the unidentifiable. But there's nothing new about that in an age of surrealism. Michel Tapié says that it is 'lyrical abstraction,' but this is too light a term for its dark enticements. Wols is also one of the artists who is called 'other.' If the word were reserved for Wols alone, I would begin to see the point of it.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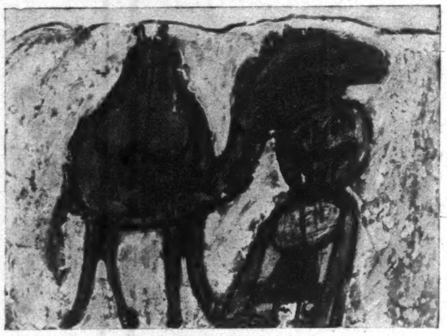
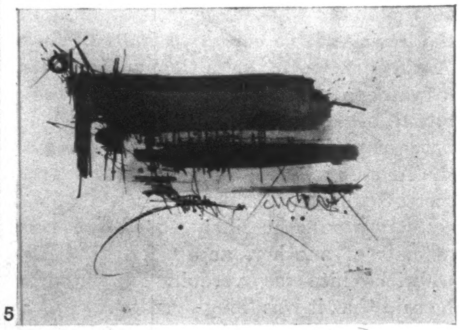

4

Most of the 'other' artists were included in the show at Tooths. It was devoted to watercolours, gouaches and oils on paper, and the modest size of them and the lightness of the substance that stained the paper produced a rather thin effect of sophisticated aestheticism. Apart from Wols, Dubuffet was the only exhibitor who had something more than artistic good manners, He appeared in his celebrated role of child artist, before a lively North African audience, 4.

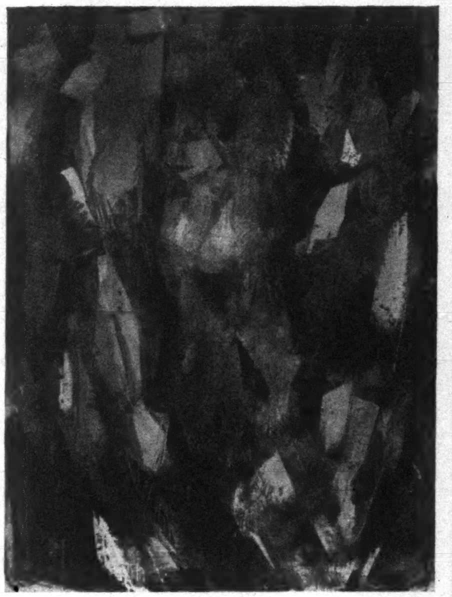
The others brought 'other' art charmingly into line with those mixed shows from Paris of work by artists other than 'other' which are frequently held at the same gallery. This being the case, there will probably have to be some modification in the claims made for it in the explanatory literature of the movement. If I have correctly grasped what Mr. Lawrence Alloway is saying in his introduction to the show, he is claiming that before this group of artists came along drawings and watercolours were always considered to be stages on the way to a painting and that it has been left to such painters as Sam Francis, Appel and Mathieu to show that a watercolour need not be 'an expendable contribution to a painting,' but can be 'level' with it! Having thus established their historical situation, his next task—that of persuading us that everything in the show is beyond criticism—is comparatively easy. He has only to lean on the support of no less an authority than a Mr. Harold Rosenberg, who is quoted as saying that 'if a painting is an action, the sketch is one action, the painting that follows is another,' and that therefore 'the second cannot be " better " or more complete than the first.' So there you have it. 'Other' art is 'other' because nothing is ever better or worse than anything else. In fairness to some of the exhibitors, I should add that their work does not need this kind of protection.

Avoiding any hint of a desire to evaluate the Mathieu watercolour *Gris et Bleu*, 5, I would like to quote a statement of his which is reproduced in the catalogue: 'Previously, signs were always invented for things: the thing came first, and a sign was invented to designate it. Today the sign comes first, and will endure (and therefore really be a sign) only if it finds an incarnation for itself.' I think that this is well-argued, and I have reproduced his watercolour in the hope that it may serve a practical purpose. If you should ever see a long-snouted animal come drifting in from outer space, with a battered behind and a submarine attached to its belly, you may well be able to calm the fears of others by pointing out that it is simply an incarnation of Mathieu's sign.


5

Theodor Werner, who is one of Germany's veteran abstractionists, was represented by two pictures in 100 *years of German Art*, and I am sorry I cannot remember them, because all the pictures in his handsome one-man show at Marlborough Fine Arts are of recent date, and the earlier examples might have provided a clue to his development. Will Grohmann's introduction is not helpful in this respect.

The recent paintings are 'free abstractions,' or, as Herr Grohmann puts it, they are 'produced by the vibrating motions of the act of painting in which the painter himself seems to participate only to a limited degree.' I must admit that I didn't feel that the artist's participation was particularly limited. The paint goes its own spontaneous, carefree way within



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very carefully prescribed limits and the paintings left me with the very strong impression that they contain much camouflaged calculation, as if the artist had come over from the ruler-and-compass school without entirely severing his old connections. It seems clear that he has lyrical intentions, but the lyrical impulse is nowhere given free rein. The painting reproduced here is a notable example of his work, 6, and it is done with great technical virtuosity, but as far as I can see nothing happens in it that is beyond calculation, and far from producing what Herr Grohmann calls a 'multiplicity of results,' establishes an over-simplified relationship with some earlier treatments of the same theme. It's the 'nude in the forest' theme, superbly treated by Rousseau, which was transformed by Picasso in analytical cubism and became a nude cornered by sharp-edged space. The woman in Werner's picture is trapped in freely painted yet neatly contrived 'planes.' Unfortunately, she has no presence to speak of, and the theme has lost most of its magic.

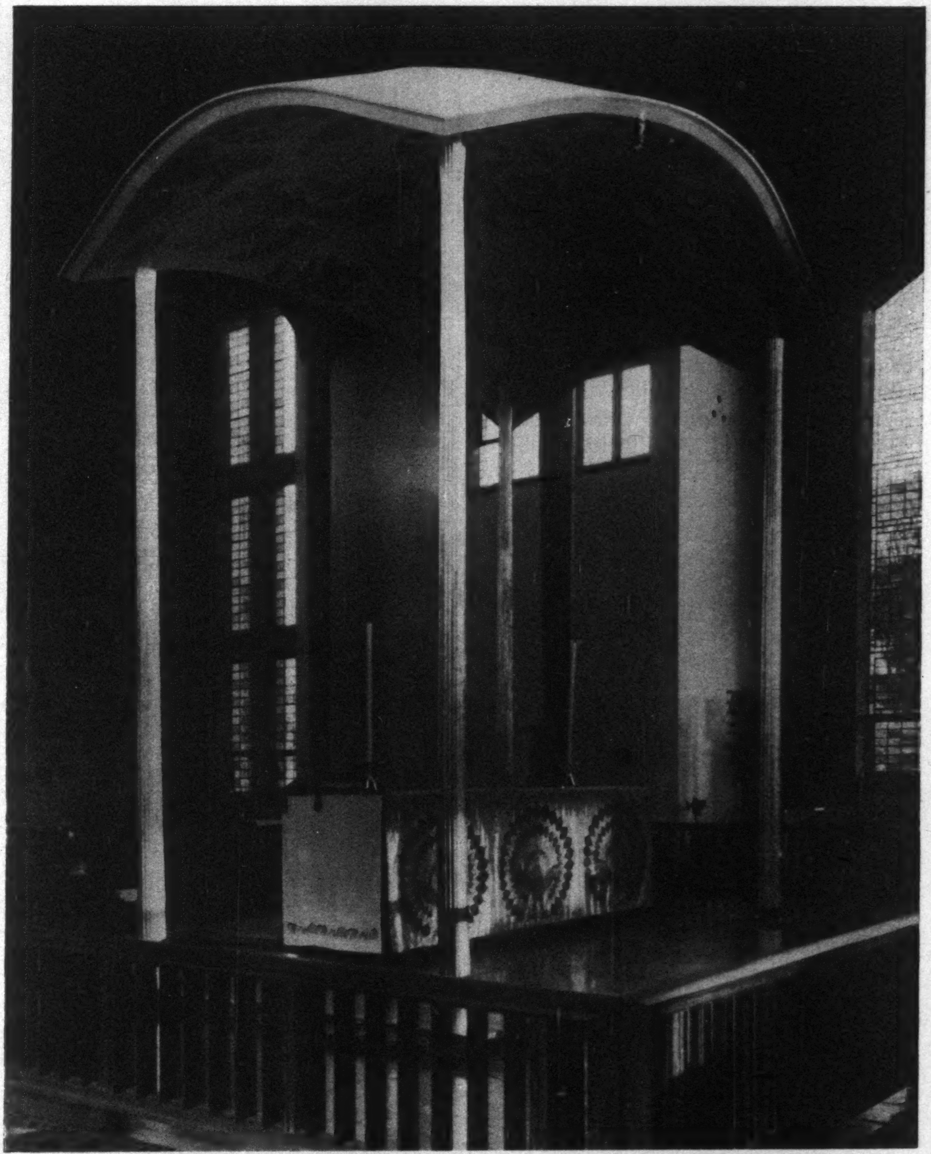
Robert Melville

ART IN USE

PAINTING IN A NEW CHURCH

The employment of a distinguished modern painter to collaborate in the decoration of a new church is sufficiently rare for Mr. Robert Medley's recently completed painting at Plymouth to be something of an event, quite apart from its interest as a good example of his work, 1 and 2.

The church, (architects, Robert Potter and Richard Hare) is at Crownhill, and it



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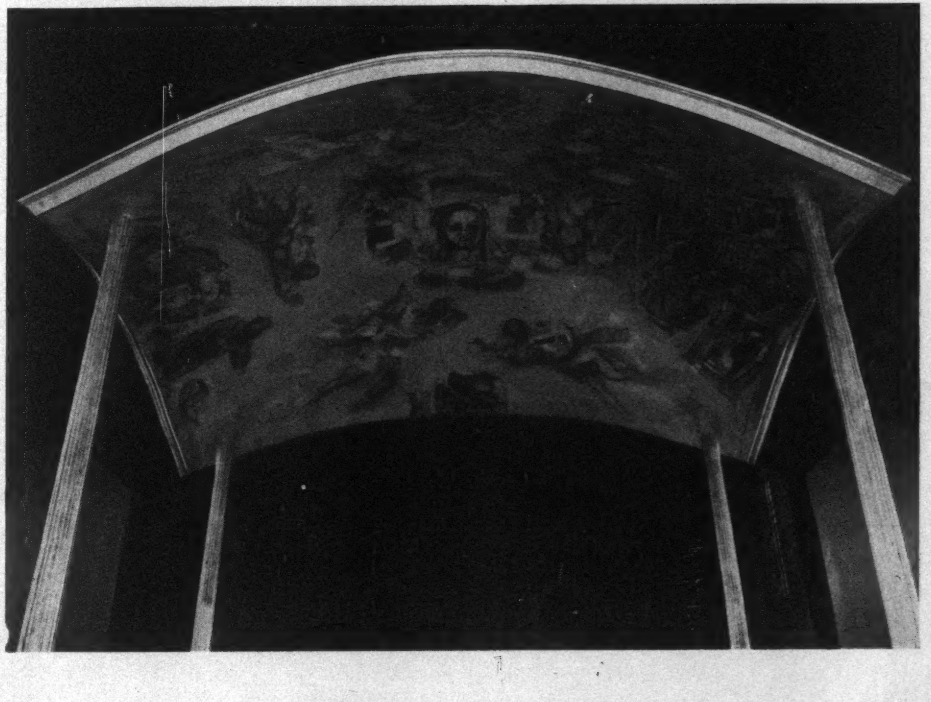
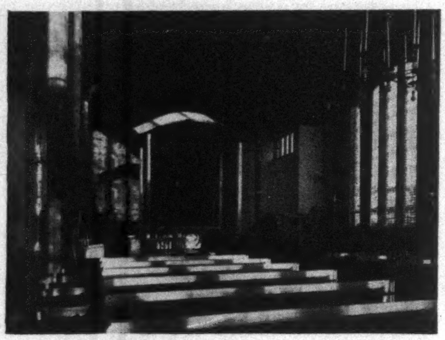


2

was at the suggestion of the vicar, the Revd. Eric Turnbull, that Mr. Medley was invited to paint the underside of the ciborium over the altar, 1. The intention was to create a lyrical, rather than an emblematic or symbolic, design and the iconography of the decoration finally evolved by the artist is based on the Four Elements, over which hover celestial beings who are to be understood as representing Air. The centres of the long sides depict the Sacraments, represented by a still life of Bread and Wine in a basket, and Fire, represented by a burning bush. On the short sides are Earth represented by a hillock with a morning scene of sheep and a shepherd playing a pipe, and Water, represented by an evening scene with a fisherman casting his net into a stormy sea, 2.

The predominant colours are blue, white and green, and the architects collaborated with Mr. Medley when choosing the colour of the vaulted ceiling of the church itself and of the gilding on the columns that support the ciborium, 3.



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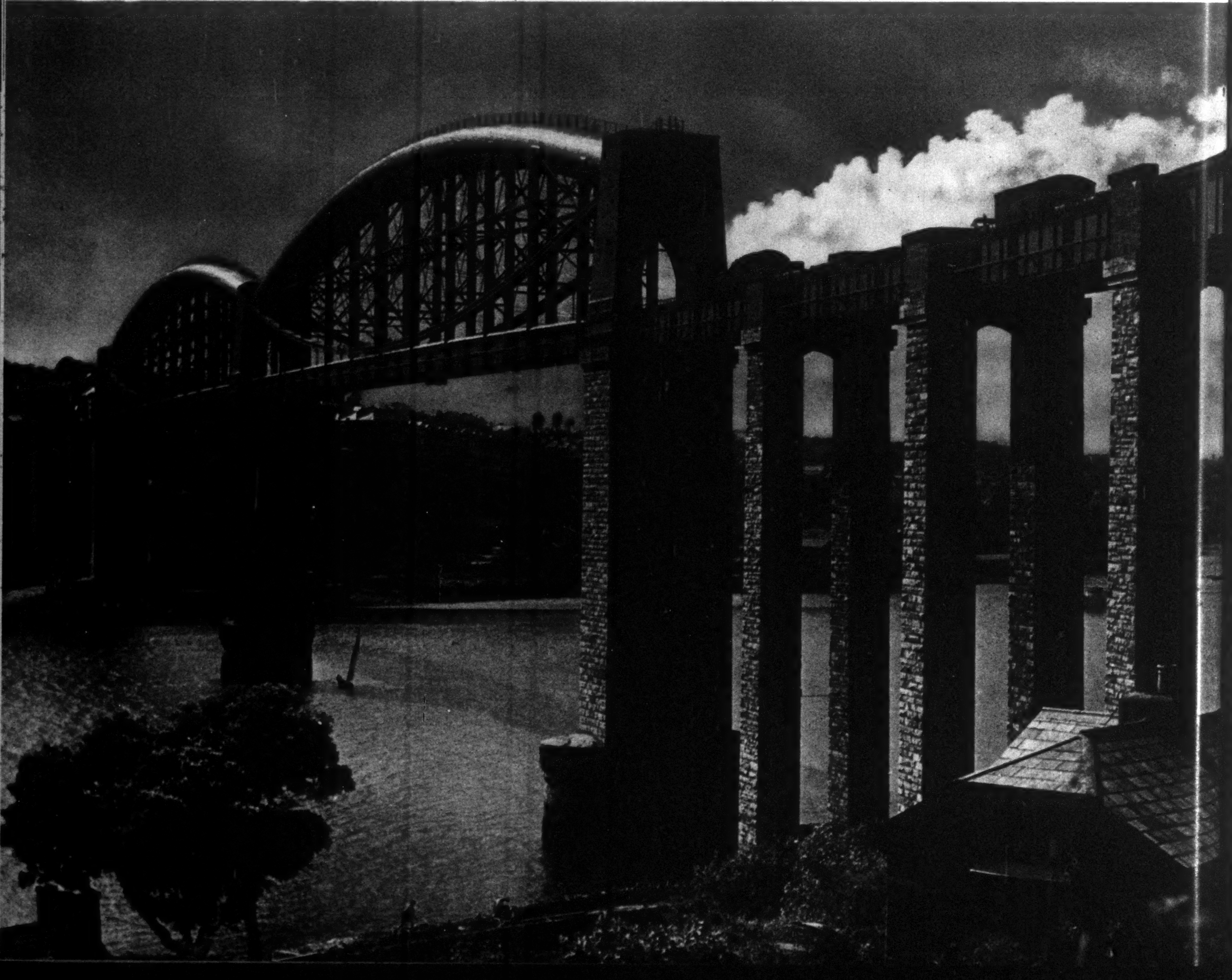
The painting was done in oil paint on a gesso and oil ground. It has a matt surface and will be given an eggshell wax varnish after it has had some months to settle. It was executed on the site, partly because it would have needed so much space in a studio, and partly because of the difficulty of visualizing off the site the effect of the particular lighting conditions on the curved surface. This meant, however, that although the design was ready in cartoon form, the work itself could not be begun until after the erection of the ciborium in the church. This was completed in mid-November, 1958, and the painting was finished a few days before the consecration of the church on December 6.

J.M.R.

CENTENARY

SALTASH BRIDGE: 1859-1959

The Royal Albert Bridge over the River Tamar at Saltash was opened by the Prince Consort on May 2, 1859. The first wrought iron bridge of



1, ***the Royal Albert Bridge at Saltash, designed by I. K. Brunel and opened by the Prince Consort in 1859.***

large span was Robert Stephenson's Britannia tubular bridge over the Menai Straits which was opened nine years earlier, but I. K. Brunel's Saltash bridge represents a considerable advance both in engineering technique and design.

The Britannia Rock had provided Stephenson with a convenient surface base for a central pier, whereas to find a rock base in the Tamar for his central pier Brunel had to go down through 80 ft. of water and mud. Again, because the Cornwall Railway was a comparatively poor company Brunel had to devise some form of superstructure more economical than Stephenson's great rectangular tubes.

Brunel's answer to the problem of the central pier was to design and construct what was called 'the great cylinder' of wrought iron 90 ft. long, 37 ft. in diameter and weighing 300 tons. This was in fact the first large compressed air caisson ever used. The inclination of the rock bed on the site of the pier had previously been plotted by means of a small cylinder, 6 ft. in diameter, and the bottom cutting edge of the great cylinder was shaped to suit this inclination. It was floated out by means of pontoons and sunk in June, 1854, but it was not until the following February that it reached bedrock.

As constructed, the cylinder contained two working chambers, a central one, which was in effect a diving bell with an open access shaft, 10 ft. in diameter, above it, and an outer annular compartment, 4 ft. wide and subdivided by bulkheads, which was designed to be pressurised. Access to this was provided by the 6-ft. diameter cylinder which had been used earlier for exploration. It was provided with the necessary air-locks and installed within the 10-ft. access cylinder.

Unfortunately a major fault in the rock base was soon opened up and through this water poured in such volume into the central chamber that it overwhelmed the pumps. Brunel decided that the only solution was to pressurise the central compartment also. The 10-ft. cylinder had not been designed to withstand pressure so before his plan could be carried into effect yet another cylinder, 9 ft. in diameter, had to be built and installed within the 10-ft. cylinder as reinforcement. When this most difficult operation had been successfully completed, work on the pier was resumed and it had been carried up to a temporary cap above water level by December, 1856.

The two main trusses of the bridge represent the development of a design which Brunel had previously used at Chepstow. Each 455-ft. span consists of an oval wrought iron tube 12 ft. 3 in. high by 16 ft. 9 in. wide from which the bridge platform is suspended by chains and vertical rods. The tube is curved to a radius equal to the arc of the suspension chains, and as the width of the tube is equal to that of the platform, these chains hang vertically. In these two respects the design was an improvement on Chepstow.

These two great trusses, each weighing 1,060 tons, were built parallel with the shore line on the Devon side of the river and successfully floated into position on pontoons. Brunel personally superintended the floating of the first (western) span on September 1, 1857, but his chief assistant, R. P. Brereton, supervised the second in July, 1858, as Brunel was by this time seriously ill.

When the trusses were in position, water ballast was admitted to the pontoons so that the trusses settled onto the temporary pier caps. Three hydraulic presses at each end were then used to raise them to their final position 100 ft. above high water level. The masonry of the land piers and the sections of the octagonal cast iron columns which form the upper portion of the central pier were built up beneath them. This central pier is 190 ft. high from bedrock to rail level, while the top of the girders stands 260 ft. above the high water mark. There are seventeen approach spans of varying dimensions on stone piers which bring the total length of the bridge up to 730 yards.

When Brunel died a few months after the bridge was opened, the directors of the Cornwall Railway ordered that the inscription 'I. K. Brunel, Engineer, 1859' should be placed over the shore archways. Brunel's last masterpiece of railway engineering thus became his memorial. In recent years the wrought iron girders of the small approach spans have been replaced by steel, but otherwise the Saltash bridge stands today exactly as it was built, a splendid tribute to one of Britain's greatest engineers. It cost £225,000 to build, considerably less than half that of the Britannia Bridge.

L. T. C. Rolt

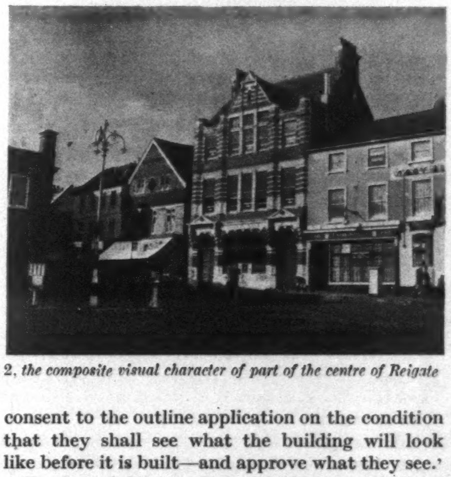
COUNTER-ATTACK

THE DILEMMA OF 'AMENITY'

In 1938 *J. M. Richards made a prescient and prophetic study of Reigate, Surrey, as a typical example of London's outer ring towns whose pattern has been completely changed by commuting yet which still keep their old country-town shape.* His message was quite clear—adapt or be swamped: keep whatever is worth while from the past, without attempting to copy it in any of the new buildings, and create a new purely twentieth-century suburban centre. How is Reigate doing, now that the article has come of age? Well, let a recent report in the *Surrey Mirror* speak for itself:

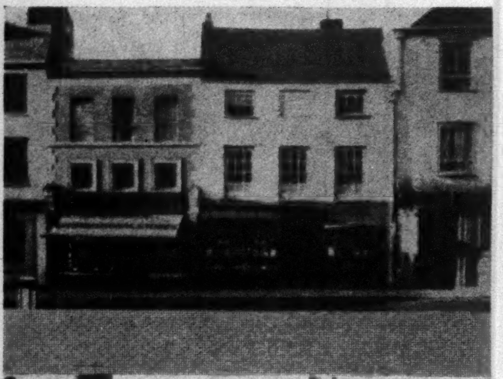
1, *Church Street; the house to be demolished is on the right.*

'I see that the Borough Town Planning Committee have come to very reasonable terms with its owner and his architect on the question of its removal' (an eighteenth-century house in Church Street) 'and replacement with a new three-storey building—offices on the ground floor, residential accommodation above. On the understanding that this new building shall be "Georgian in character," the County Records and Ancient Monuments Committee raise no objection to the development, and the Borough Council have approved a proposal that the South-East Surrey Area Planning Sub-Committee be recommended to consent. The committee have also been able to take a benevolent view of the proposals affecting shop premises on the Old Town Hall side of High Street, which led to a discussion at the November Council meeting. It has been found that "no major setback" is required for new buildings on this site, and that if the present shops are taken down and a new building erected on the same building line as that of the next premises to the west, about two feet of additional footpath will be provided. The Planning Committee have been informed that the applicants have expressed their willingness to undertake that the new two-storey building proposed shall be designed in elevation "in Tudor or Georgian style to harmonize with the general tone and atmosphere in the High Street." The Records and Ancient Monuments Committee, however, are said to be stipulating that the new building shall be of Georgian character—not Tudor. The Borough committee recommended consent to the outline application on the condition that they shall see what the building will look like before it is built—and approve what they see.'



2, *the composite visual character of part of the centre of Reigate*

For incredulous readers, this does in fact come from a paper of 1959, not of 1929: and photographs of recent buildings in Reigate make it clear that this desperate slavering after the past is being interpreted to perfection. One wonders what the Town Planning Committee wears in session—buckles and periwigs, or simply doublet and hose? Is a condition of consent that the building should have sanitation in Tudor or Georgian style, is the building cost provided at Tudor or Georgian rates



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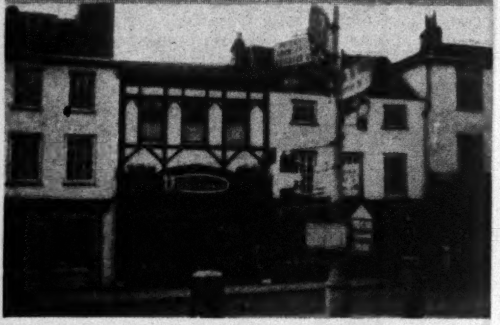

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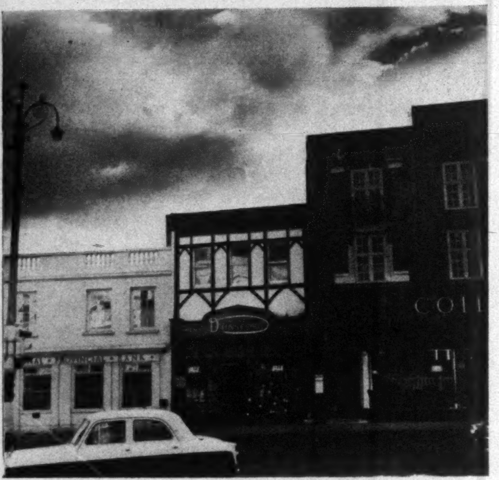

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3, 4 *and* 5, *the same view in* 1933, 1938 *and* 1959. *This is just a farcical game of architectural musical chairs.*

of exchange and are the building workers employed according to Tudor or Georgian contracts?

It is all hot nonsense. And when it is so clearly done with such good intentions no kindly words of reproof can do much good: they are simply metamorphosed into a statement of solidarity by exactly the same process as makes the Town Planning Committee able to see Georgian style elevations maintaining the character of the High Street: 'this chap thinks the same as we do, really; a few differences over details, perhaps, but general agreement.' The only thing that may work is a shock, so here it is, much more in sorrow than in anger:

I know intimately every town in Surrey and most towns in South-East England. In that context Reigate is a job lot of Home Counties rebuilding, already three-quarters spoilt by gentility and characterless fakes. Except for the inside of the Priory, the eighteenth-century buildings are pleasant but unremarkable; the Market Hall is nicely placed but a rough design, the High Street is a pleasant shape but the only general tone and atmosphere is bad suburban of (about) 1936—even the crisper, slicker new suburban spirit of towns like Uxbridge or Staines is quite absent. The one unique thing in Reigate, the road tunnel which used to throw southbound travellers into the very middle of the town, has its effect emasculated because one-way working ensures that travellers only use it when going north, out of the town. In fact, from the point of view of honest character, there is more to be said for despised Redhill on the Brighton Road with its honest late Victorian offices and jazz-modern Odeon. At least, Redhill is a genuine recognizable place; Reigate is now just a pasteboard fake.

TIMOTHY WHITES
F. W. WOOLWORTH & CO. LTD

6, *recent architecture in Reigate: High Street.*

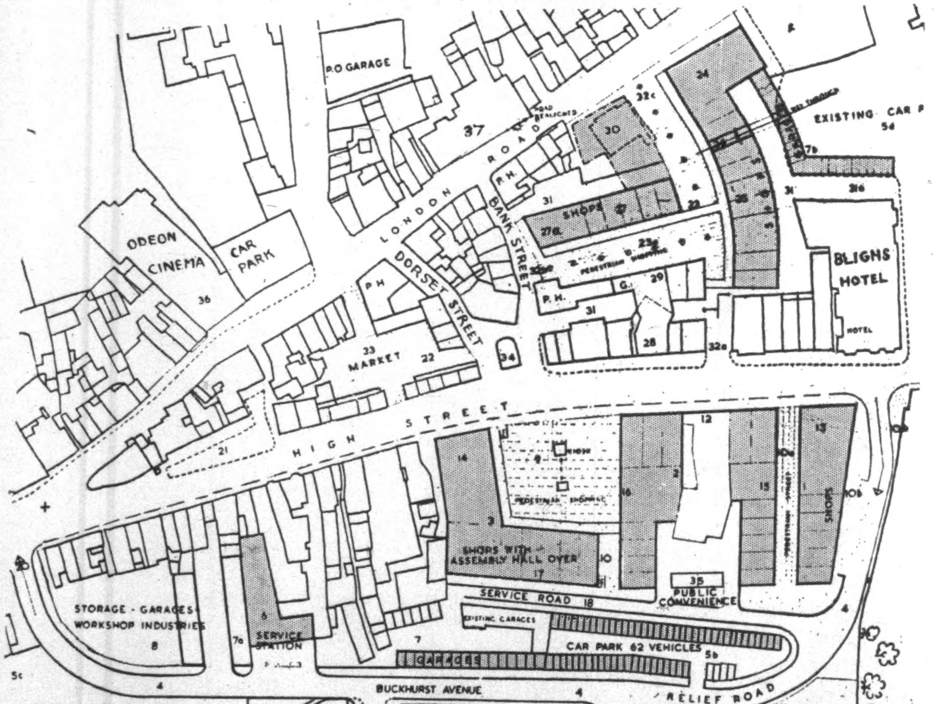
There are of course co-partners in this dismal picture. If the Town Planning Committee are asking for all the wrong things, the architects, jolly fellows, are happily supplying them. For each of these buildings in Tudor or Georgian style up and down the country—and there are so many of them—there must be some poor chap actually drawing out the dripstones and pediments, most likely fresh out of architectural school after years of learning how to design modern buildings. How must he feel abed o' nights?—after a few years he stops feeling, after a few more he is designing the dripstones and pediments himself. Just suppose he and his mates all went on strike—even a token strike, to get publicity: they are in a strong position, for *somebody* has to draw the working details. But the profession does not seem to have that sort of spirit any more: perhaps it is typical that 'Anti-Ugly,' the only live expression of student opinion on architecture, started as an organization of students of art, not architecture. In fact Reigate itself ought to be protesting also. The Reigate Society is flourishing and active, its vitality a model for other amenity societies. It is pledged to preserve the town's character, and nothing is doing more damage to what remains of this than architectural fakes concocted to meet false ideas of what a gracious-living Reigate might have looked like if that awful nineteenth century hadn't got in the way.

To be fair, someone who is both of Reigate and an architect has done so—this letter by J. R. Stammers to the *Surrey Mirror* sums up the case against fakery as well as could be done: it is astonishing that it should need to have been written at all.

'We emerged just before the war from the time

7, *recent architecture in Reigate: Church Street.*

8, *Max Lock's plan for the centre of Sevenoaks.*



P.O GARAGE
37
LONDON ROAD
ROAD REALIGNED
ODEON CINEMA
CAR PARK
36
P.H.
DORSET STREET
BANK STREET
SHOPS
27
27a
23
PEDESTRIAN SHOPPING
30
32c
24
22
29
28
31
32a
34
33
MARKET
22
21
HIGH STREET
EXISTING CAR P
5a
7b
31a
BLIGHS HOTEL
HOTEL
14
3
SHOPS WITH ASSEMBLY HALL OVER
17
KIOSK
PEDESTRIAN SHOPPING
12
2
16
15
13
SHOPS
10
10a
10b
35
PUBLIC CONVENIENCE
SERVICE ROAD
18
EXISTING GARAGES
CAR PARK 62 VEHICLES
5b
GARAGES
7
7a
6
SERVICE STATION
STORAGE - GARAGES - WORKSHOP INDUSTRIES
8
5c
4
BUCKHURST AVENUE
RELIEF ROAD
STORAGE - GARAGES - WORKSHOP INDUSTRIES
8
CAR PARK 262 VEHICLES

when mock Tudor found favour with some; but it seems that mock Georgian is still thought to be safe and respectable in this historic town. How long must it be before we develop a truly critical approach to the architecture of our own age? In the last few years we have seen a number of new buildings in the centre of Reigate; hardly one of them purports to be an honest building of the mid-twentieth century. Those who built the Old Town Hall and the Barons that we admire so much thought only of building in the best and latest way they knew. We should be truer to that tradition if, instead of concerning ourselves with imitations and styles we looked at present-day architecture with a selective and critical eye and found the best of 1959 to place beside our architectural treasures of the eighteenth century.'

And in fact if Reigate looked twenty miles east along the Weald it could see the sort of adaptation it ought to be making. At Sevenoaks, which was actually one of the 'outer ring' towns listed by J. M. Richards in his article, part of the centre of the town has just been replanned by Max Lock, grafting in suburban-centre amenities in exactly the right way to exactly the right scale. The plans have been submitted for public inquiry before they have been passed so that people can say what they think about them. Obviously the whole thing could still stand or fall by inept elevations but here at least is a town facing up to its present destiny, not trying to dream itself into a mythical past.

Ian Nairn

BOOKS

MAP MAKING

ARCHITECTURE: 19th and 20th CENTURIES. VOLUME OF THE PELICAN HISTORY OF ART. *By Professor Henry-Russell Hitchcock. Penguin Books.* 70*s*.

In the hundred and fifty years covered by the Architecture—Nineteenth and Twentieth Centuries volume of the Pelican History of Art not only did the actual output of Western architecture increase by a fantastic amount, but it both spread geographically to cover the greater part of the inhabited world, and produced many types of buildings—dockyards, railway stations, department stores, skyscrapers, factories, hotels, and so on—which had existed before, if at all, only in an embryonic state. Others have written about architecture of certain areas, or dates, or types within this period; but Professor Henry-Russell Hitchcock is probably the only person living who has a knowledge both wide and deep enough to enable him to undertake the formidable task of writing about it all.

The result is a book which will never cease to be invaluable if only for the immense amount of information which it contains. Buildings of all types in some twenty-five different countries are illustrated or described, and in the process many what will be to most people quite unknown schools are comprehensively dealt with: the French Second Empire style and its progeny, for instance, and the Romantic Classical Architecture of America. The chapters on commercial architecture and the nineteenth-century Anglo-American house are the first really thorough studies of two vitally important subjects. The field covered in fact is a huge one, nor is its layout muddled; with a sure touch piece by piece is fitted into its correct place in the puzzle, until out of the confused (if at times exciting) picture of Victorian architecture gradually emerges the features of the modern style. It is immensely stimulating to have the whole panorama of nineteenth- and twentieth-century architecture thus laid out before one for the first time, and to be able to watch the complex and fascinating game of shuttlecock that was going on between the countries concerned; Germany and France, for instance, sending their round-arched and mansard styles round the whole world, and England and America in their turn fertilizing Germany with their own domestic architecture. Seen in their international setting certain architects appear strangely transformed, such as that inspired mediaeval play-actor William Burges, who proves to have been a formative influence on H. H. Richardson, and thus, ultimately, on Frank Lloyd Wright.

It must, however, be admitted that Professor Hitchcock has written a book primarily for architectural historians (and perhaps architects) which the average well-informed layman will probably find unreadable. Certainly nothing has been done to smooth his way. Professor Hitchcock's approach to the architecture with which he deals is an extremely, perhaps a deliberately, narrow one. No effort is made to relate buildings to the social or political movements of the time, and very little to analyse the different approaches to architecture engendered by natural traditions: the academic Beaux-Arts tradition in France, for instance, as opposed to the individualistic pupil-master relationship in England. We are told little or nothing of the personalities or background of the various architects, or of what they themselves thought or wrote or said, or of what their contemporaries thought or wrote or said about them. The book lacks almost completely such contemporary quotations; and Professor Hitchcock's own style makes no concessions to elegance, nor even, at times, to clarity.

The decision (if decision there was) to limit so strictly the lines of approach was perhaps a right one, however tough going the results may be. The book, comprehensive as it may seem, is in fact already very selective, leaving out (quite rightly) whole schools of architecture the quality of which did not merit their inclusion. A less narrow approach would have involved still greater selectiveness. This might have been preferable in treating of a well-worn subject; but in a work which explores for the first time so many unknown tracts of territory it is probable that the more buildings and their architects named, the better. Certainly the great number of buildings included in the book will immensely enhance its value as a book of reference.

Correct though this treatment (which comes, at times, perilously close to cataloguing) may be, the questions it leaves unanswered remain, and it is perhaps as well to refer to some of them. There is, for instance, no more startling or dramatic story in architectural history than that of the rise and fall of cast-iron. More and more daring construction in the nineteenth century culminated in the building of the Crystal Palace of 1851, when it seemed that a new architecture was about to be born. The coming nativity was widely proclaimed by contemporaries, while peasants in the remotest parts of Germany hung lithographs of the new marvel on their parlour walls. But within ten years functional iron and glass architecture had been universally discredited; and the short and easy step from the Crystal Palace to the Fagus Factory was not in fact taken for sixty years. Professor Hitchcock, of course, describes this reverse, as many have done before him; but a really exhaustive and penetrating analysis of the causes behind it remains to be written. It is not enough to put it down, as Giedion and other protagonists of the modern movement rather naturally have done, as a victory for the forces of reaction and convention; in England at any rate, as a quick look at the photographs in the book under review will show, the opposition was led by men of genius, conviction and originality, whose work was ultimately to lead, though by quite different paths, to the modern architecture of today. The reaction was, I suppose, part of the great anti-rationalist movement of the mid-nineteenth century; and perhaps Pugin's attacks on the Crystal Palace, Dickens's crusade against the Poor Law, Disraeli's hatred of the Utilitarians, and Newman's conversion to Rome, were all different aspects of a similar frame of mind.

Just why did the Chicago School collapse before the American neo-classic revival of the early twentieth century? Why was Italy such a dead end during nearly the whole of the period under review? What different frames of mind underlie the curious love-hate relationship between Frank Lloyd Wright and the European modernists? The truth of course is, that the architectural history of this period is still in its infancy. Professor Hitchcock is the first to have mapped the whole period in detail; it remains for the architectural geologists to come and tell us why the mountains and rivers are there, and what their significance is to us. But of course they could never have worked without maps; and for one man to have written alone the necessary pioneer work, of so vast a scope, and of such accuracy and discernment, is an achievement which will always deserve salute.

Mark Girouard

RUSHLIGHT TO NEON

THE SOCIAL HISTORY OF LIGHTING *By William T. O'Dea. Routledge & Kegan Paul.* 42*s*.

'I was bred and brought up by rushlight, and I do not find that I see less clearly than other people. . . . Potatoes and taxed candles seem to have grown into fashion together.' So Cobbett wrote in 1821 and he ended his advocacy of the rushlight: 'You may do any sort of work by this light; and, if reading be your taste, you may read the foul libels, the lies and abuse, which are circulated gratis about me by the "Society for Promoting Christian Knowledge," as well by rushlight as you can by the light of taxed candles.' The SPCK may not have changed but the demands of factory production made more powerful illumination a necessity. Mr. O'Dea lists the essential dates. The Argand lamp came in 1782, Henry Lodge's cotton mills near Halifax were gas lighted in 1805, the snuffless wick candle was invented in 1820 following the discovery of the fatty acids, the South Foreland lighthouse was electrically lit in 1858, the use of kerosene on a large scale began about 1869, and the first efficient electric lamps were produced by Swan in 1878 and Edison in 1879, after Sprengel had invented the vacuum pump. This marvellous speed, the product of the interaction of scientific research, mechanical inventiveness and commercial skill is characteristic of the nineteenth century. Mr. O'Dea, with the learning one expects from a Keeper of the Science Museum, has written a standard account of lighting equipment, or rather catalogued it and added much interesting and useful information from extensive reading. It is only to be regretted that he did not do the job a little more artfully. By dividing his book by subject he is forced over the same facts chapter after chapter—the eighteenth century is all over the place, under the home, the theatre, the lighthouse, and so on. It does not make for consecutive reading or give any impression of the astonishing acceleration of discovery. The material in the last two chapters might well have been in the first two, and the splendidly revealing fact that Smeaton's Eddystone had to do its job by means of a two-ringed corona of 24 tallow candles ought not to have been held back.

So interesting is the story it survives an indifferent telling. Mr. O'Dea is a scholar and he offers the facts, indexes them and provides good illustrations. But it is a pity that the competent scholars in these technical and scientific subjects do not seem to know, when it comes to book writing, which side their subject is buttered. For all that it's good to have the facts on record and here they are, from rushlight and oil to neon.

Peter Ferriday

DESIGN FOR SOUND

ACOUSTICS, NOISE, AND BUILDINGS. *By P. H. Parkin & H. R. Humphreys. Faber, 70s.*

This is the first comprehensive book on building acoustics to take into account the results of all the new work which has been done on the subject since the last war both in this country and abroad. From this mass of material the authors have extracted all that they consider to be reliable and of practical value so that their book gives a very complete summary of current ideas and practice.

Some of this material, for example the BRS work on sound insulation of dwellings, deals with problems which architects have long been familiar with; other parts of it, such as speech reinforcement systems and the control of noise from industry, traffic and aircraft, introduce new problems which will increasingly force themselves on our attention in the future; others again, for instance the measurement of sound, are not within the architect's sphere at all. Thus the book is not addressed solely to architects nor to any one class of readers, but since it is the word 'buildings,' and by implication their occupants, in the title which has defined its subject, architects will find that much of the information which does not seem immediately relevant to them is of considerable interest and helps to throw light on the specifically architectural parts. This is all the more so because the authors have been scrupulous in avoiding scientific mystification and complex mathematics; a most welcome feature is the way in which charts and nomograms have been provided for avoiding lengthy calculations. Only information which is of practical use has been given and purely theoretical topics are excluded.

The first part of the book is on auditorium design. It suffers somewhat from compression, necessary no doubt to keep the book to a reasonable length. It is a pity that this subject could not have been treated at greater length with more illustrations, particularly plans and sections, and analyses of actual buildings; such photographs as are provided are not outstandingly interesting. As it is, though what is said is excellent, it suggests that the subject is duller than it is. Two specialized chapters follow, one admirably done on studios, and one on speech reinforcement systems; this should be read even by those who will not follow the technicalities, because it makes clear the potentialities and limitations of such systems and some simple principles on which they can be improved.

In the second part of the book sound insulation is dealt with as a part of the problem of noise in general and it is emphasized that the need for elaborate and expensive insulation can frequently be avoided by good planning or by suppressing the noise at its source. In fact, apart from floating floors, good insulation is shown usually to depend more on the intelligent use of normal construction than upon special expedients whose results are so often disappointing.

The authors have tried throughout to give definite recommendations and acceptable standards for insulation and noise levels in various classes of building, some their own (e.g. for offices and schools in Chapter 8) and others, from various authorities, grouped together in Chapter 10 as Criteria for Sound Insulation and Noise Control. This is one of the most useful features of the book, provided that their warning is heeded that their figures are at present all only tentative and may need to be revised in the light of experience. Chapter 9, on Measurement and Calculation, is invaluable to those whom it concerns, and there are excellent appendices giving all the general data required.

This book will certainly be the standard authority on its subject for English readers, a position previously held by Bagenal and Wood's 'Planning for Good Acoustics.' If the present work lacks the stimulating quality of its predecessor that is partly because the subject has grown and become difficult to confine to a single volume; within this compass the authors have passed on to us as much as they could of their wide experience.

Hugh Creighton

GREEN KEEPING

GROUNDS MAINTENANCE HANDBOOK (second edition). *By H. S. Conover. F. W. Dodge Corporation.* $10.75.

In the planning of open spaces, landscape architects are constantly urged to consider the problems of future maintenance; indeed, the need for economical upkeep is often the chief factor in deciding the treatment of an area to be developed.

A further practical reminder of this need comes to us in this book by an American landscape architect. Mr. H. S. Conover worked for many years for the Tennessee Valley Authority both in the development of their reserves and as manager of public services. His Grounds Maintenance Handbook, originally intended as an operational manual, was compiled from pamphlets and instructions issued by the Authority for internal use. Subsequently it was revised and broadened to appeal to a wider public.

The result is an important standard work of reference, 500 pages long and with 220 illustrations and charts. Inevitably, because it is written round the landscape of the Tennessee Valley, some of the matter is not directly applicable to this country; but even when this is so, the approach is of interest and often suggests an adaptation to our own problems.

L. Milner White

Shorter Notices

STUDIES IN ROMAN QUATTROCENTO ARCHITECTURE. *By Torgil Magnuson. Stockholm*, 1958. 60.00 *Sw.Kr.*

The author of this book belongs to the circle of pupils of Gregor Paulsson of Uppsala, who has done so much to make Sweden a centre of international research into the history of art—apart from being the *spiritus rector* of the Svenska Slöjdförening. Mr. Magnuson's is a learned book, although it is not based on direct research in archives. Enough on his subject had been published by Müntz, Egger and others to make do with it. The book does not set out to deal with the whole of fifteenth-century architecture in Rome. On the churches a German scholar, Dr. G. Urban, worked concurrently, and his results will shortly come out in the year-book of the Hertziana Library. Mr. Magnuson's three studies are concerned with town-planning, the building schemes of Nicholas V about the year 1450 and private palaces. As regards town-planning the principal problem is the Borgo Leonino, i.e. the orderly layout of the area between St. Peter's and the river, or rather the Castel Sant'Angelo. Nicholas V's plans were for the Vatican Palace and for a new St. Peter, of which the east end in a style close to Alberti's was actually begun. Mr. Magnuson's treatment is here closely linked to his interpretation of Giannozzo Manetti's biography of Nicholas written immediately after his death. The palaces are considered from the beginning of the century to, and exclusive of, the Cancelleria. The centre piece is of course the Palazzo Venezia. Few realize how completely the position of this palace with the adjoining palazzetto and garden was ruined by the opening up of the Piazza Venezia and the building of the national monument to Victor Emanuel II. On attributions Mr. Magnuson is exceedingly cautious. The volume is accompanied by five excellent maps and plans. The 68 illustrations in half-tone are on the other hand not quite sufficient.

N.P.

SKILL

PITCHED ROOF COVERINGS

by Peter Whiteley

1, unit coverings

It is an odd fact that the first casualty at the onslaught of functionalism was the pitched roof, the most functional of all the elements in our building tradition. Perhaps because he had nothing to say about the roof, the architect learnt to put it out of sight and thence out of mind. For this reason the roof has received less critical attention than other parts of the building. To help remedy this, we have planned a series of three articles on pitched roof coverings (i.e. on all roofs which offer a visible surface when seen from the ground). The object of these articles is to line up all the different materials which can be used, to discuss their functional performance, the claim they make on the underlying structure and their comparative cost. The author of these articles, Peter Whiteley, begins his trilogy by considering small unit coverings—in effect, tiles and slates.

The roof is a most critical area of any building and one where thoughtless economy and ill-considered or inappropriate detailing will eventually cause both trouble in the supporting structure and recurring maintenance costs.

In spite of the observable fact that on functional grounds the pitched roof is of longer life and more maintenance free than the equivalent flat roof (cost for cost), there is still a general reluctance on the part of the modern English architect to consider a pitched roof solution for any building other than the occasional house, unless a pitched roof comes incidentally as a by-product of economies in the whole roof structure. This would seem to be caused by an inability to think consciously of the roof as a building element with its own range of effects and expression. The pitched roof in all its forms is still customarily and unself-consciously used only in those parts of the world where there is both a lively regional architecture and a climatic necessity to pitch the roof.

These articles will present as many useful comparisons of facts as can be deduced about pitched roof coverings with the hope that they may be chosen more on grounds of fact—visual, structural and economic—rather than for reasons of habit, prejudice or sentiment.

A recent market survey (UK only) by a company producing one of the newer roofing materials has shown that, in area, 85 to 90 per cent of domestic roofs are still laid in slates and tiles of all kinds; whilst in the field of industrial roofing, 65 to 70 per cent of roofs are asbestos-cement products, up to 15 per cent are metals or protected metals and the remainder are roofed with predominantly asphaltic and bituminous products.

weather resistance

The primary function of a roof covering is to exclude water from the structure below; and in circumstances of combined high wind and rain (or snow) tiles and slates may fail to do this. But before examining the main reasons why roofs of this type leak, it is important to see how, precisely, the different patterns of slate and tile keep out moisture.

In the case of all interlocking and single-lap tiling each course of tiles overlaps only the course below, hence the term 'single-lap.' The side joints of the tiles vary according to the design of the tile, but most types have side ridges and channels, and any water that may be driven across the roof by wind is diverted to the eaves by either a ridge or a channel. But this happens only if it has a clear path and it is essential, therefore, that all side channels should be kept free from obstruction. The commonest form of obstruction is that caused by mortar bedding: interlocking tiles must, therefore, only be bedded where absolutely necessary, i.e. at verge and ridge, and here particular care must be taken to see that no mortar is left in the side channels.

In addition the torching of tiles on the underside may create capillary paths for moisture to penetrate. Hence on page 12 of CP 142 (1958) it states firmly 'that in no circumstances should tiles or asbestos-cement slates be torched.' On the fully-interlocking tiles, joints at the head are just as important as side joints, and for this reason the tail of each tile must sit correctly on the head of the tile below, which can happen only if the battens are properly spaced. Single-lap tiles such as the 'Grovebury' (Leighton Buzzard Tiles Limited) or the 'Ludlow' (Marley Tile Company Limited) have a variable head lap (which should not be less than 3 in., but may be more) and, therefore, are only partially interlocking. It follows that a fully interlocking tile (at sides and head) such as the 'Sterreberg' interlocking pantile (Langley London Limited) can be used safely on roofs of lower pitch than can, say, an ordinary English pantile that has no weather stops.

Slates and plain tiles, unlike single-lap tiles, are (more or less) flat slabs or sheets laid in courses side by side with open side joints. It is inevitable that there should be penetration of water between adjacent units. So it is necessary in both slating (including shingles) and plain tiles (*a*) that there shall be at least two thicknesses in every part of the roof, and (*b*) that each course shall overlap the next course but one below. Water passing between slates on to the centre of the slates in the course below will not enter the roof if the covering material is impervious and if the slates or tiles are laid with a sufficient head lap and side lap on a roof of suitable pitch.

For example, on a slate roof of 35° pitch the head lap should be not less than 3 in. (for a site of normal exposure) and should be increased to 3½ in. for a pitch of 30°.

Side lap is the distance by which the side of the slate overlaps a slate in the course below. It provides lateral protection against water creeping diagonally sideways between the slates and penetrating the roof through the nail holes of the slate below. It should be noted that the lower the pitch of the roof the wider will be the 'angle of creep,' and conversely the narrower the slate, the shorter the distance that has to be travelled from the joint between the slates where the water enters and the nail holes of the slates in the next course below. Creeping is not dangerous in slating, provided that slates of adequate width proportionate to their length are used, which accounts for the recognized minimum ratio of width to length of individual slates, e.g. 24 in. by 14 in. and 12 in.; 20 in. by 12 in. and 10 in.; 12 in. by 10 in. and 8 in., and so on.

While it will always occur on a slate roof under certain circumstances, creeping can also take place between plain roofing tiles. At one time plain tiles were invariably made quite flat with no camber in their length so that they fitted close together like slates. It was found that because of creep in long periods of wet weather the tiles tended to remain wet, particularly between faces, and so speed up frost action and delamination of the tiles. Most tiles of clay and concrete are now made with a camber in the length and sometimes also a slight cross camber. Because of camber an increase in the lap of plain tiles decreases the pitch of the individual tiles by raising the lower edges, and so the lap should not exceed one third of the length of the tile; the optimum for most conditions being 2½ in. to 3 in.

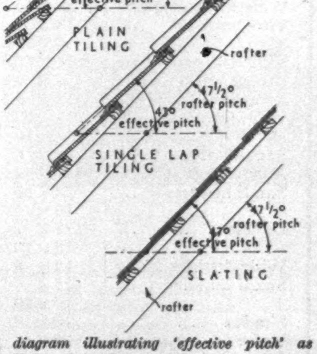
The causes of leaks in slated and tiled roofs may be one or combination of a number of the following:

1. Water may find its way over the heads of the slates or tiles, or through the nail holes. In a majority of cases this is due to the rafters having too low a pitch for the type of roof covering.
2. Water may find its way through the covered parts of the side joints between adjacent slates and tiles. This kind of leak is more usually associated with slating, and is due to the side lap being less than the minimum necessary for that particular length of slate.
3. Water may actually penetrate the covering direct if it is of a very porous nature and there are extreme conditions of exposure; but this is less likely to occur on a steep pitch than on a shallow one.
4. Leaks frequently occur where the slating or tiling finishes, or joins, surfaces of another material—verges, abutments, ridges and open valleys are such situations. These are places where poor workmanship will become apparent soonest; and if such junctions can be kept to a minimum by designing roofs of simple form, so much the better for the life of the roof. Of these four cases, 1 to 3 are closely related to the pitch of the roof.

roof pitch

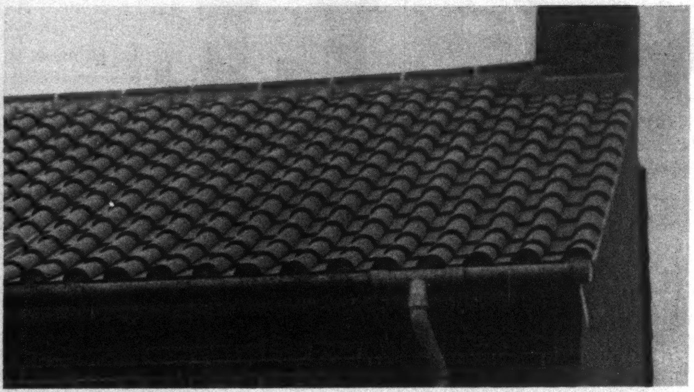
The effective pitch of both slates and tiles is less than the pitch of the rafters. This is an important point that must be taken into consideration when a pitch is being chosen for a particular covering. 1 illustrates effective pitch in plain and single-lap tiling and slating. In each case the rafter pitch is 47½°; the effective pitch of the plain tiling is 39°, of the single-lap tiling 43°, and of the slating 47°. It follows from this fact that slating may be safely fixed on a roof having a rafter pitch that would be too low for plain tiling.

Experience has proved that a slate whose width is half its length does, unless the pitch is very low and the site exposed, give sufficient side lap to ensure that creeping shall not reach the nail holes; which can be summed up as follows: use proportionately wide slates on low pitches,



1, *diagram illustrating 'effective pitch' as applied to plain tiles, single lap tiles and slates.*

2,3



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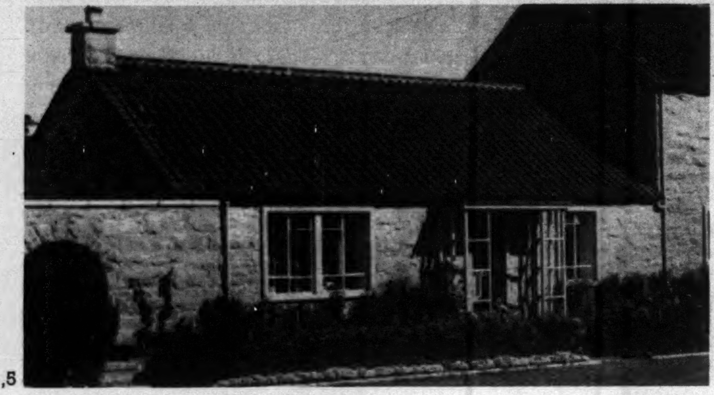
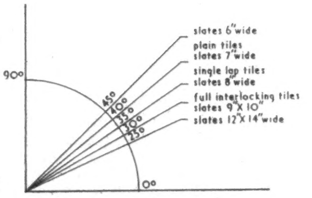


2, *Colt Canadian Western Red Cedar Shingles.*
3, *Ancona single Roman hand made concrete tiles.*
4, *Bambino hand made interlocking clay tiles.*
5, *Priory bold roll interlocking clay pantiles.*
6, *minimum actual or rafter pitches for unit roofing materials.*

Table 1. Sized Slates Laid to 3-in. Lap.

name	size in.	gauge in.	number of slates required to cover: one square	number of slates required to cover: 1 sq. yard	area covered by 1,000 slates: squares	area covered by 1,000 slates: square yards	ft. run of battens: per square	ft. run of battens: per sq. yard
	30×16	13½	67	6	15.00	166.7	89	8.01
	30×14		76	7	13.13	145.8		
	28×16	12½	72	6	13.89	154.3	96	8.64
	28×14		82	7	12.15	135.0		
Empresses ...	26×16	11½	78	7	12.78	142.0	104	9.36
Small empresses ...	26×14		89	8	11.18	124.3		
Princesses... ...	24×14	10½	98	9	10.21	113.4	114	10.26
Duchesses... ...	24×12		114	10	8.75	97.2		
Small duchesses ...	22×12	9½	126	11	7.92	88.0	126	11.34
Marchionesses ...	22×11		138	12	7.26	80.6		
Wide countesses ...	20×12	8½	141	13	7.08	78.7	141	12.69
Countesses ...	20×10		169	15	5.90	65.6		
	20× 9		188	17	5.32	59.0		
	18×12	7½	160	14	6.25	69.4	160	14.40
Wide viscountesses	18×10		192	17	5.21	57.9		
Viscountesses ...	18× 9		213	19	4.69	52.1		
	16×12	6½	185	17	5.41	60.2	185	16.65
Wide ladies ...	16×10		222	20	4.52	50.2		
Broad ladies ...	16× 9		246	22	4.07	45.2		
Ladies	16× 8		277	25	3.61	40.1		
Wide headers ...	14×12	5½	218	20	4.58	50.9	218	19.62
Headers	14×10		262	24	3.82	42.4		
Small ladies ...	14× 8		327	29	3.06	34.0		
Narrow ladies ...	14× 7		374	34	2.68	29.7		
Small headers ...	13×10	5	288	26	3.48	38.6	240	21.60
	13× 8		360	32	2.78	30.8		
Doubles	13× 7		411	37	2.43	27.0		
	12×10	4½	320	29	3.13	34.7	267	24.03
Wide doubles ...	12× 8		400	36	2.5	27.8		
Small doubles ...	12× 6		533	48	1.88	20.8		
	10×10	3½	411	37	2.43	27.0	343	30.87
Singles	10× 8		514	46	1.94	21.6		
Units	10× 6		686	62	1.46	16.2		



6

and small, narrow slates on steep pitches.

6 is a guide to minimum (actual) pitches for a number of tiles and slate types. A good underfelting is assumed for all the above coverings at the stated pitch.

CP 142 sums up the matter of suitable pitch for tiles and slates as follows:

'It is known that some patterns and qualities of single-lap tiles are satisfactory for use with pitches less than 35°, but these are the exceptions at present. Therefore, the user should ensure that there is sufficient evidence available to prove any claims made for the use of pitches less than 35°. The best proof of any such claims is the citation of examples of roofs covered with such tiles that have behaved satisfactorily for 15 years or more.'

It is undoubtedly the architect's responsibility to see that the pitch of the roof is appropriate to the roof covering chosen; and conversely, if his design seems to require a pitch appreciably below 35°, then tiles and slates are not the right group of coverings for the job.

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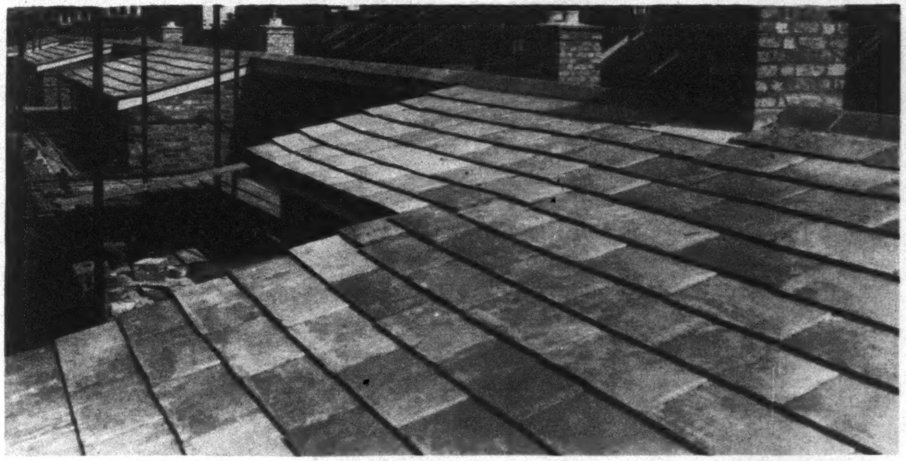

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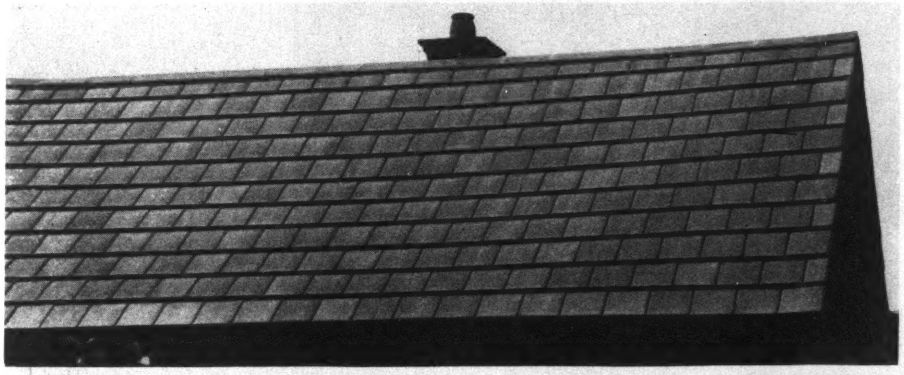

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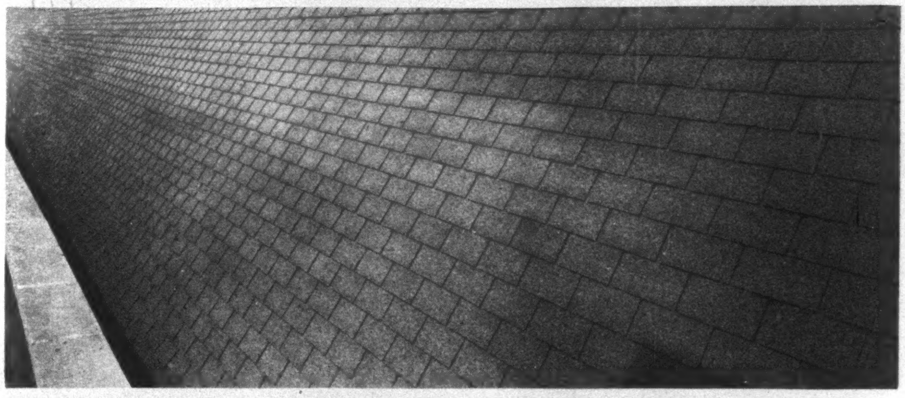

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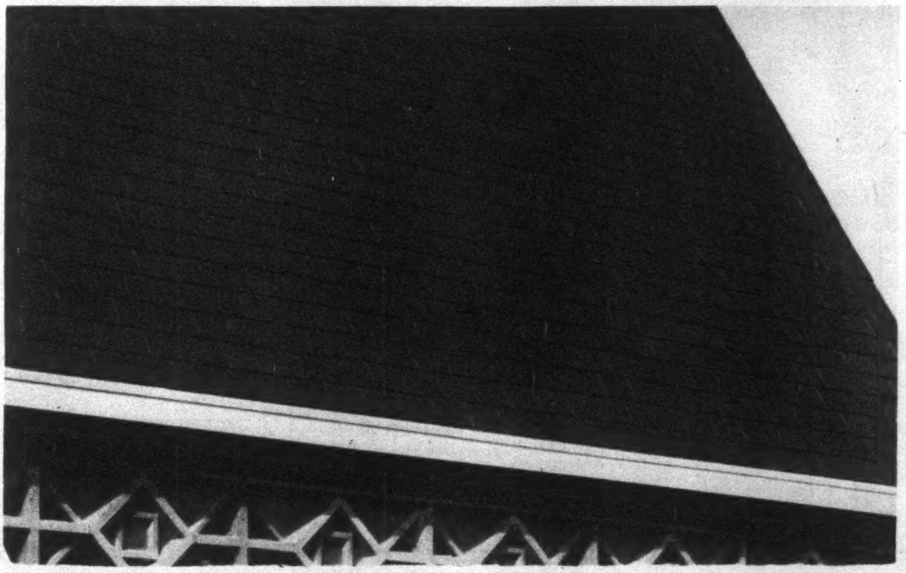

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heat losses through roofs

The choice of whether adequate insulation against heat loss should be made in the plane of the roof (thus providing a heated roofspace) or whether the main insulation should be at ceiling level, is probably decided on other grounds than that of choice of roof covering. However, if good practice for this group of materials is observed then a roof of tiles or slates on battens, counter-battens, felt and boards would already give the U value of .35 without ceiling and it would be comparatively easy to provide the additional insulation required, to bring the total U value down to .18 to .2, at ceiling level.

Tables 16 to 19 of 'Thermal Insulation of Buildings'* give many alternative ways of providing ceiling insulation to certain U values together with the cost per square yard.

definitions

Not all of the terms used in this class of roof covering are as familiar to architects as they should be. Here are some of them, taken from BS 2717 : 1956 'Glossary of Terms applicable to Roof Coverings.'

Shingle. A short thick rectangular piece of timber, usually tapering in thickness along the grain, used in the same way as tiles for covering the roofs and sides of buildings. (See BS 565.)

(*a*) Dimensions. Western red cedar shingles specially cut to uniform instead of random widths and obtainable in 16-in. and 18-in. lengths by 5-in. and 6-in. widths and 24 in. long by 6 in. wide.

(*b*) Five X or XXXXX (5X). The name given to Western red cedar shingles cut to 16-in. lengths with a thickness of five butts measuring 2 in.

(*c*) Perfections. Western red cedar shingles cut to 18-in. lengths with thickness of 5 butts measuring 2¼ in.

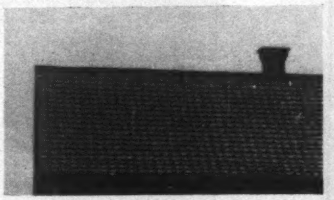
(*d*) Processed shakes. Ordinary sawn Western red cedar shingles that have been specially textured on the face to resemble the irregularities of riven shingles.

(*e*) Royals. Western red cedar shingles cut to 24-in. lengths with the thickness of four butts measuring 2 in.

(*f*) Sawn singles. Shingles produced by sawing from a block of wood as opposed to being cleft or riven.

(g) Saxon shakes. Hand cleft or riven shingles of Western red cedar, 24 in. long, random in width and ranging in thickness from ¾ in. to 1¼ in. at the butt. They are usually hand split to double thickness and subsequently sawn diagonally edgewise to provide a flat back for even laying.

Shingles are also obtainable in oak and Swedish pine.



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* HMSO, 12s. 6d.

7, *Hardrow concrete slates laid to a pitch of* 15°.
8, *Stonewold interlocking concrete slates.*
9, *Ruberoid square butt strip slates.*
10, *Poilite asbestos cement slates.*
11, *C.D.N. Belgian types fully interlocking clay pantiles.*

Table 2. Interlocking and Single-lap Tiles

name of tile	size	gauge	number required to cover		area covered by 1,000 tiles		wgt. of 1,000 tiles	weight of tiling		feet run of battens required	
	in.	in.	1 square	1 sq. yard	squares	square yards	cwts.	per square	per sq. yard	per square	per sq. yard
								(cwts.)	(lbs.)		
Acme	15¼ × 8¼	12¼	150	14	6.7	74	40	6	61	97	8.73
Bambino	13½ × 10½	10½	150	14	6.66	73.5	50	7½	76½	115	10.35
Beauvais	12¼ × 8⅛	10⅝	187	17	5.3	59.5	40	7½	76	113	10.17
Cloister	11¾ × 8½	9⅞	200	19	5.0	55	39	8	82	122	10.98
Double Roman—											
Double Roman	16½ × 14	13½	85	8	11.8	130	70	6	61	90	8.10
Large interlocking	16½ × 14	13½	85	8	11.8	130	70	6	61	90	8.10
Major's patent	18 × 14½	15⅛	75	7	13.3	148	80	6	61	80	7.20
Patrician	13½ × 13½	10½	110	10	9.09	100	62¼	7	72	115	10.35
Rainbar	16½ × 13	13½	90	8	11.11	125	70	6	61	90	8.10
Reynardo	16½ × 14	13½	85	8	11.8	130	70	6	61	90	8.10
Small interlocking	15 × 11	12	120	11	8.4	92.5	51	6¼	63	100	9.00
Gilardoni marne	16 × 9⅝	13⅜	134	12	7.46	83	54	7¼	73	90	8.10
Goxhill pantile	13½ × 9½	10½	172	15½	5.82	64.6	45	7¾	79	115	10.35
Blyth's pantile	13½ × 9½	10½	172	15½	5.82	64.6	45	7¾	79	115	10.35
Homestead	15½ × 8	12½	165	15	6.0	67	40	6½	67	96	8.64
Langboro	16⅝ × 9⅛	13⅝	132	12	7.6	84.2	50	6½	66	89	8.01
Langhome pantile	13½ × 9½	10½	180	16¼	5.55	61.7	40	7¼	73	114	10.26
Langley's bold roll interlocking pantile	14⅞ × 10½	12¼	146	13¼	6.86	76.3	50	7⅓	74	98	8.82
Langley's C.D.N. interlocking (the 'Courtrai' tile)	11½ × 8½	9½	208	19	4.8	52	33	7	71	126	11.34
Langley's interlocking improved pantile	13⅞ × 10	11½	147	14	6.8	75.5	43	6¼	63	104	9.36
Langley's model 'O' interlocking pantile	14½ × 10	11¾	158	14¼	6.33	70.2	51½	8¼	82	102	9.18
Langley's mulden interlocking tile	16⅛ × 9¼	13½	135	13	7.4	82	50	6½	66	89	8.01
Marseilles	16½ × 9¾	13½	127	12	7.9	87.5	45	5¾	58	90	8.10
Old English pantile	14 × 10	10¾	155	14	6.45	71.6	40	6¼	62¾	112	10.08
Paragon	15¼ × 10	12¼	125	11	8.0	89	45	5½	57	98	8.82
Poole's patent (large)	16 × 14	13	90	8	11.1	123	80	7¼	73	93	8.37
Poole's patent (small)	12½ × 9½	9½	150	14	6.7	74	50	7½	76	127	11.43
Priory	13⅞ × 10⅛	11¼	141	13	7.09	78	54	7½	76	107	9.63
Rectory	13 × 11¼	10¼	140	13	7.15	79	50	7¼	73½	117	10.53
Sitfast pantile	14 × 10	10⅛	168	15¼	5.95	65.5	45	7½	76½	118	10.62
Somerset patent interlocking no. 13	15½ × 8	12½	155	14	6.4	71.5	40	6½	67	96	8.64
Somerset pantile	13½ × 9½	10½	170	15	5.9	65	40	6¾	68	115	10.35
Sterreberg interlocking pantile	13¾ × 9¼	11½	165	15	6.0	67	50	8¼	84	104	9.36
Treble angular	15 × 13¼	12	95	9	10.5	116.5	60	5¾	58	100	9.00
Treble corrugated	16½ × 14	13½	85	8	11.8	130	70	6	61	90	8.10
Triton pantile	13½ × 9½	10½	165	15	6.06	67.4	56	9¼	94	115	10.35
Triton romulus	13¾ × 11¼	10½	150	13½	6.66	73.5	72	10¾	109½	115	10.35
Spanish and Italian types											
Italian (Colthurst Symons)	15½ long	12½	100*	9*	10.0*	111*	40†	8	81½	96	8.64
Lido	16¼ long	13	100*	9*	10.0*	111*	40†	8	81½	93	8.37
Spanish (Colthurst Symons)	14 long	10½	125*	11*	8.0*	89*	35†	8¾	89	115	10.35
Triton Milan	15½ long	11½	116*	10½*	8.62*	95.8*	54½†	12½	127½	105	9.45
Triton Seville	15⅜ long	12⅜	122*	11*	8.2*	91*	57†	14¼	145	98	8.82

* Pairs, i.e. one over and one under tile. † 500 pairs.

Table 3. Plain Tiling

size of tile	gauge	lap	number required to cover		area covered by 1,000 tiles		feet run of battens per square	weight of tiling	
in.	in.	in.	1 square	1 sq. yard	squares	square yards		per square (cwts.)	per sq. yard (lbs.)
10½ × 6½	3½	3½	633	57	1.6	17.5	343	14	140
	3¾	3	591	53	1.7	18.8	320	13	131
	4	2½	554	50	1.8	20.0	300	12	123
	4½	1½	492	44	2.0	22.5	267	11	109
11 × 7	3½	4	588	53	1.7	19.0	343	13½	136
	3¾	3½	549	49	1.8	20.3	320	12¾	127
	4	3	515	46	2.0	21.8	300	12	119
	4¼	2½	484	44	2.1	23.0	282	11¼	112
	4½	2	457	41	2.2	24.3	267	10½	106

table 2

Since a number of the types of tile named are produced by various manufacturers there are slight variations in size, gauge, etc. It is advisable, therefore, to delay battening until the tiles are on the site when the best spacing can be decided.

Slates. Pieces of true slate rock or other laminated stone, split and dressed for use as roof coverings. (See BS 680.)

(*a*) Peggies. Small sizes of slates of random sizes which are sold by weight.

(*b*) Ton slates. Large sizes of slates which are sold by weight. The terms 'bests,' 'seconds,' 'medium,' etc. (according to the district of mining), refer to thickness (and weight) and not to quality of the material.

Tiles. Shaped pieces of fired clay, moulded concrete or other suitable artificial material for use as roof coverings. The following are the names given to tiles:

(*a*) Interlocking pantile. Single-lap tiles so designed that adjacent tiles interlock at the head and side.

(*b*) Italian tiles. Single-lap tiles used adjacently in pairs, the under tile (tegula) being flat and the over tile (imbrex) rounded in horizontal section.

(*c*) Normal roll pantiles. Pantiles with roll of equal width from head to tail.

(*d*) Pantiles. Single-lap tiles moulded to a flat S-shape in horizontal section the corrugations running from the head to the tail of the tile.

(*e*) Plain tile. Rectangular tiles without moulded surfaces with projecting nibs on the back for fixing and slightly cambered in their length and sometimes also in their width.

(*f*) Single-lap tiles. Tiles so designed that those in any course overlap only the tiles in the course below.

(*g*) Spanish tiles. Single-lap tiles used adjacently in pairs, the under-tiles and over-tiles being rounded in horizontal section.

(*h*) Tapered roll pantiles. Pantiles in which the rolls slightly increase in width from head to tail.

covering capacities of tiles

Tables 2 and 3 give the covering capacities of each kind of tile, then weights and the foot run of battens they require. This data is of value as it is customary to quote the prices of tiles per 1,000 and the coverage (and hence the weight) varies very considerably. All calculations are net, no allowance having been made for breakage and waste.

In next month's issue we publish a set of tables which carries this data a stage further and compares both the physical properties and the cost of all the coverings mentioned in this article. The subsequent articles in the series will do the same for the other types of pitched roof coverings so that, when the series is complete, readers will have a comparative reference for virtually all varieties.

---

table 3

Plain tiles of different makes vary in weight between relatively wide limits. For the purpose of this table the following weights have been taken:
10½ *in.* × 6½ *in. tiles*—22 *cwts. per* 1,000.
11 *in.* × 7 *in. tiles*—23 *cwts. per* 1,000.

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THE INDUSTRY

Hollow mould floors

Mills, the scaffolding people, have joined forces with the great Nettlefold group to produce a new suspended floor system. The floor has a coffered soffite which results from the sink-like 'pan' shutter units that are the essence of the system. These, 2 ft. 9 in. square on plan and 9 in., 12 in. or 15 in. deep, are made of glass fibre reinforced plastic and rest on propped centres. They are immensely strong and resistant to impact damage, are sufficiently light in weight for six pans to be carried by one man, and are claimed to give a finish smooth enough to decorate direct, although much depends on the quality and laying of the concrete. No mould oil is needed.

Mills Scaffold Company Ltd., Hammersmith Grove, W.6. GKN Reinforcements Ltd., 197 *Knightsbridge, S.W.7.*

Float glass

Plate glass costs between four and six times as much as drawn sheet. This is because of the great expense of making, installing and running the grinding and polishing plant—one of the problems of which is its extraordinary length of 2,140 feet. Pilkington Brothers have now announced their invention of a new process for making glass of a quality very close to polished plate, but without these attendant difficulties.

Glass technologists have always regarded the 'fire' finished surface of drawn sheet glass as superior to the ground and polished surface; it is brighter, confers proportionately more strength and of course requires no 'process' to achieve. Like the dreamers of cold light or perpetual motion they have sought a means of combining fire finish with parallel plane surfaces. Such a means has now been found, and not without difficulty, it took seven years and cost £4 million to develop.

In principle it is very simple. Molten glass from the furnace is rolled on to the surface of a molten metal where additional heat allows it to settle like a liquid to an exactly constant thickness. It passes across the metal, which does not mar its surface, to a cooler end of the metal bath where it hardens sufficiently to be taken by rollers through an annealing lehr and thence to a final cutting process. This whole process occupies a length of only 646 feet.

At present its cost will be the same as that of plate glass—to pay, the Company says, for the expenditure on its development.

Pilkington Bros. Ltd., St. Helens, Lancs.

Ready made buildings

Ready made buildings seem now quite common—and surprisingly alike. A system is being offered under the name Cygnacrete, consisting of precast storey height columns, transverse beams and trough unit floors, or roofs. It can be obtained with flat or portal frame pitched and north light roofs and no limit is given for the number of storeys. The plan with perimeter and one centre row of columns has an overall width of building varying from 40 ft. to 72 ft. The single span frame has overall widths of 38 ft. or 40 ft. It is perhaps unfortunate that the brochure does not indicate how corners or staircases are managed, nor does it say very much about external walling possibilities, finishes or accommodation of services. The company appears to supply or to supply and erect, the frame only.

William Townson and Sons Ltd., Higher Swan Lane, Bolton.

Two new lighting catalogues

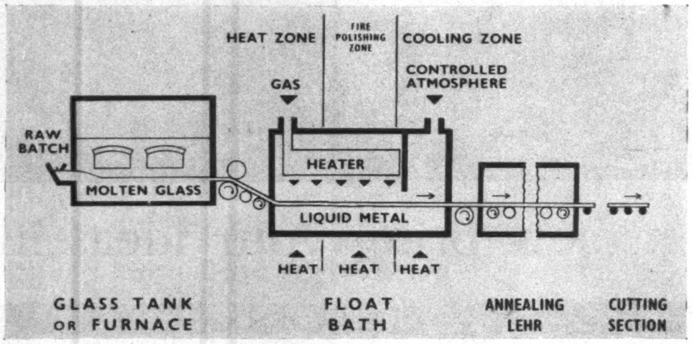
Two new lighting catalogues are reviewed this month. The fittings shown in them do not differ so very greatly from each other, which emphasizes all the more the importance of presentation. Vivid photographs, systematic layout so that items are easy to find and all the information needed by an architect to choose what he wants for his building—these are the essentials.

In the introduction to their new catalogue of commercial lighting fittings, Siemens Ediswan remark that 'even where the purpose is purely functional, fittings have been designed with an eye to good appearance' . . ., etc. One feels, looking through the range, that attention to appearance has perhaps been a little too self-conscious. There are sections dealing with fluorescents, pendants (ceiling and wall), spot and floodlighting fittings and what the catalogue refers to as 'architectural' fittings. These are, in fact, strip lights.

The concluding pages of the catalogue include some refreshingly old-fashioned fittings which have words

[continued on page 296

1, *diagram of the new 'float' process of making glass; the nature of the liquid metal on which the glass floats is kept secret.*



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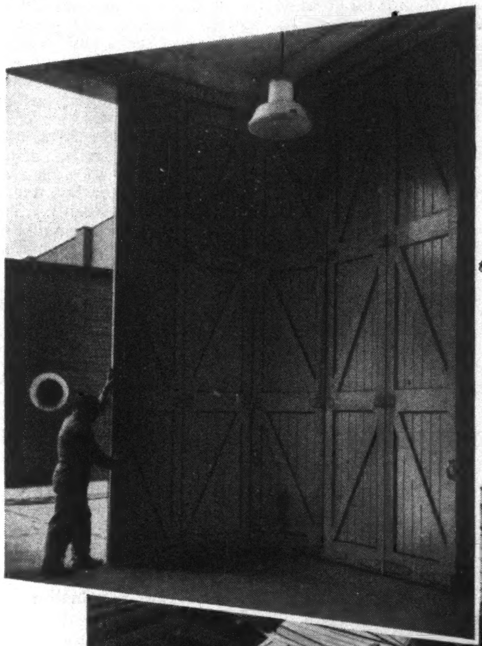

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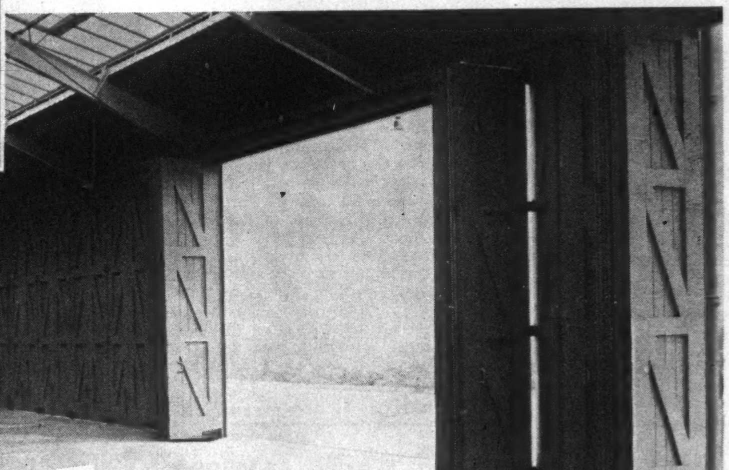

Despatch bays of William Jackson & Son Bakery, Stockton-on-Tees. Opening 84 ft. wide overall.

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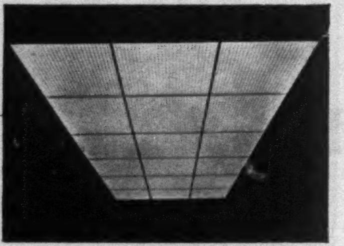

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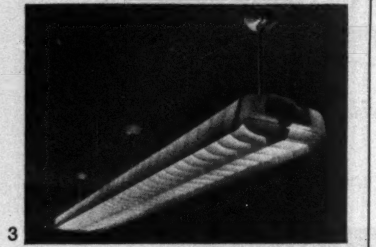

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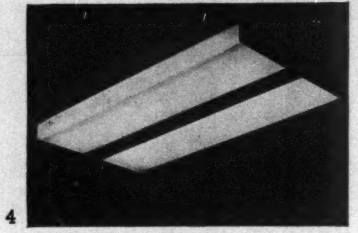

2, detail of Paragrid-tile.
3, Luveline fluorescent fitting.
4, Four two one fluorescent fitting.

on them like Exit, Cloakroom and Dentist. For recherché architects I note that the firm still makes those ribbed reflector fittings with gallery fixing.
Siemens Edison Swan Limited, 38 *Upper Thames Street, London, E.C.*4.

A decidedly more sophisticated range comes under the name of Handslite (a subsidiary of the Harris and Sheldon shopfitting organization) in a plushy thumb index catalogue. The first page makes it clear that the firm has its ear to the architectural ground—for it gives strips of colour sample with both the BS and the Munsell references—for the colours in which the fittings can be obtained. The first section deals with fluorescents and accessories including two recent products. First the Luveline, a polystyrene egg-crate type of diffuser made in lengths which clip on to the body of a two-tube fitting. The lengths of diffuser hinge down from one side for easy cleaning and can be put together in 'trains' to make a continuous fitting. The next new product is the Paragrid tile: square, 16 in. by 16 in., of plastic egg-crate—with much smaller squares than is usual (28 strips in the 16 in.) and with the strips going one way lower down than those going the other way. To quote the makers: 'this gives the ceiling a very delicate and distinctive texture . . .' It also gives greater freedom of the spacing and mounting heights of fluorescent tubes above the Paragrid. The tiles are fixed into channel sections at 32 in. cc, which in turn are wired to the structure above.

The catalogue continues with a number of good plain industrial fittings and concludes with an immense range of tungsten wall, ceiling and table fittings all of which are very à la mode—especially the ones with bottle-shaped pendant globes (you cannot call them shades)—patterned and coloured. Among the fluorescents is a rather appealing echo of the 1920's German design—the 'Four two one.' It is only 3½ in. deep, the control gear being housed between (and not above) the two twin tubes, and is intended for places where headroom is scanty.
Harris and Sheldon (Electrical) Limited, Ryder Street, Birmingham, 4.

It would improve the usefulness of these catalogues if they could show an explicit diagram to scale of each fitting and some indication of its lighting characteristics—the output at various angles and the surface brightness of visible parts.

Lifts

Hammond and Champness, the lift people, recently issued a booklet which earned them a Certificate of Merit by the RIBA and the Building Centre. Now appears a supplement intended to serve as an indication of the infinite variety of treatments which can be applied to lift entrances. Individuality can be expressed still further by the introduction of specially designed call and indicator panels. There follows a great many photographs of everything from American commercial, through Contemporary and Modern even to a Brutalist lift entrance.
*Hammond and Champness Limited, Blackhorse Lane, Walthamstow, London, E.*17.

Copper roofing

A new kind of copper roofing of waffle like appearance came on to the market last year. It consists of very thin soft copper (42 SWG 0.004 in. thick) bonded to a single layer of glass fibre based bitumen sheet. The resulting 'sandwich' weighs 6 lb. per yard super and is laid in a manner similar to traditional copper—i.e. with rolls, drips, standing seams, etc.—on a base of reinforced glass fibre underlay, fixed to the deck (timber or concrete). It is appropriate for pitched or nominally flat (1 degree minimum slope) roofs and is fixed only by the makers themselves, not by accredited contractors. The indented waffle pattern of the copper is 'designed to accommodate the effects of thermal expansion' although the technical literature appears to suggest that the traditional means are necessary as well. The makers emphasize that the roof acquires the time-hallowed patina of basic copper carbonate, the intention would thus seem to be that you get a copper roof at less cost than the orthodox article, although no prices are given.
The Ruberoid Company Ltd., Commonwealth House, 1–19 *New Oxford Street, W.C.*1.

Thermal insulation

Thermal insulation and U values were things unknown to the architect before the war but with the intense fuel economy campaign and the general air of redeeming our inter-war shortcomings that marked the 1940's, U values became common property. Now every architect below a certain age level can bandy the figures and do calculations with them. It appears, however, that for all this time we have been bandying the wrong figures. The London Brick

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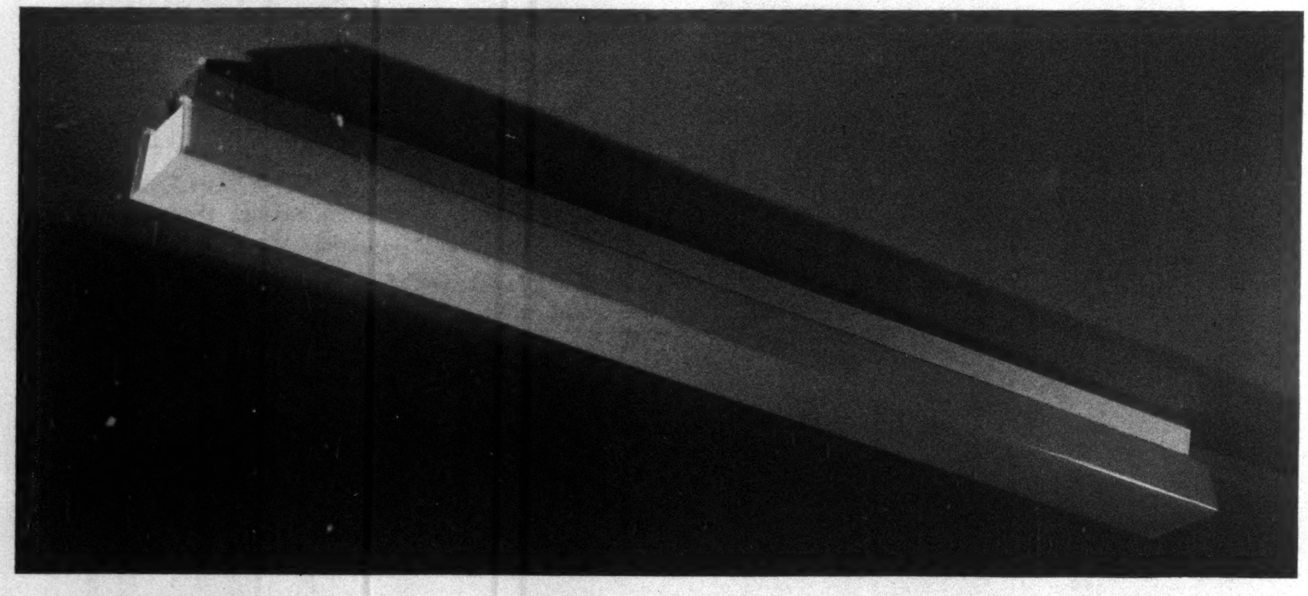

One of a series of Fluorescent Fittings priced from £6 1s. 4d., which have been styled by Noël Villeneuve for commercial and industrial uses. *Brochure series 303*

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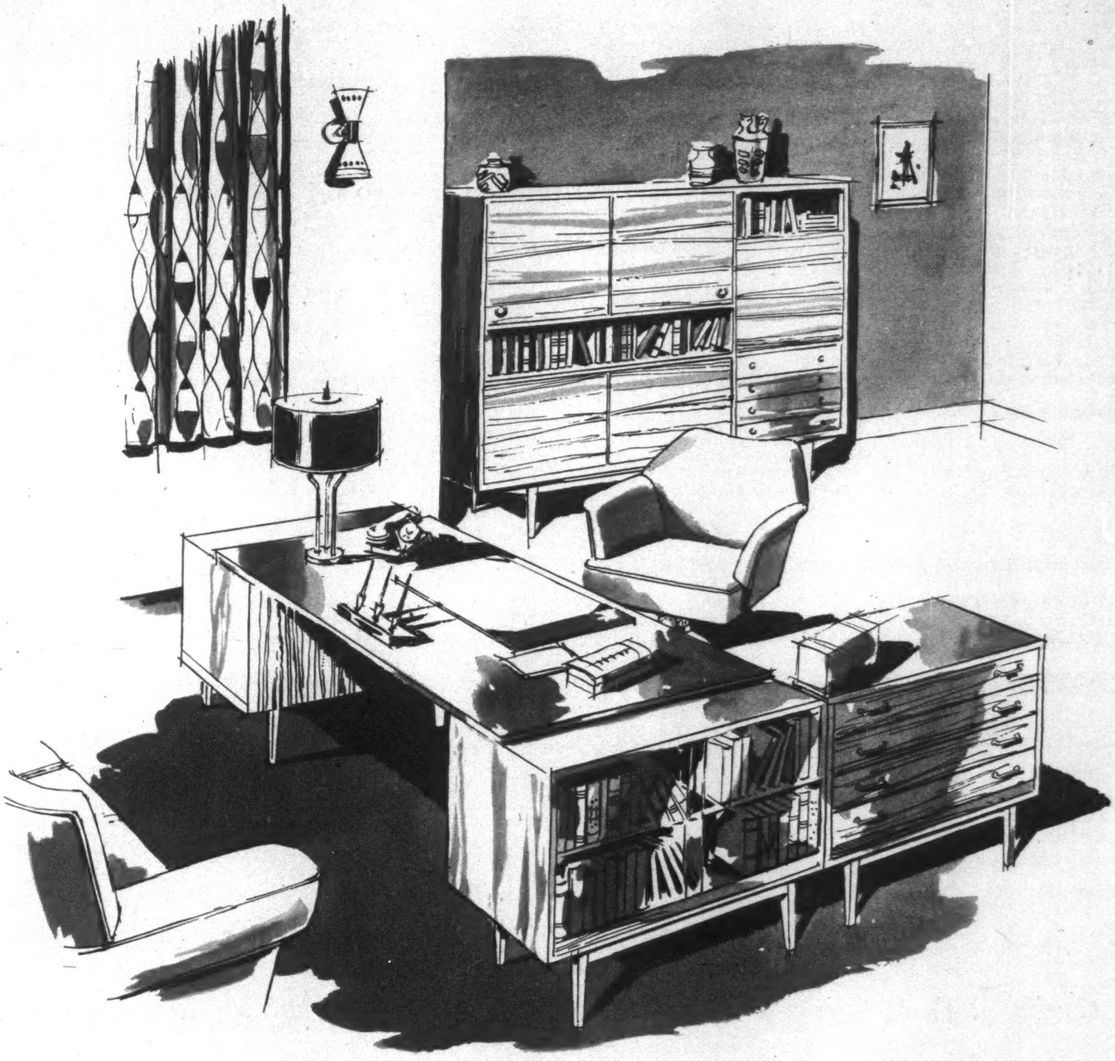

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continued from page 296]

Company have recently completed a four-year investigation of the actual thermal losses in real conditions at their research establishment at Stewartby in Bedfordshire. They say that the figures we all know, for example 0.30 for brick cavity walls, are based on laboratory data that failed to account fully for factors such as moisture content, radiation losses to sky, wind, degree of exposure, etc. Thus the 0.30 value should be 0.28, a clinker block, cavity, brick wall should be 0.26 and not 0.20. Various other combinations of material give similar differences from those commonly accepted.

The company have shown a graph, plotting the day-to-day variation in U value of a wall whose average is 0.28 which extends from just over 0.20 to 0.40—a variation due to the factors mentioned above, the chief of which may be moisture content. Subsidiary studies of this problem show that clay products absorb moisture less readily and give it up more quickly than concrete products. Whether the new values make a great deal of difference to our calculations of heat loads remains to be seen.

The results of their investigations have been summarized in a 16-page booklet. If you are interested in U values, and you should be, this is a booklet that should be on your files. *The London Brick Company, Africa House, Kingsway, W.C.2.*

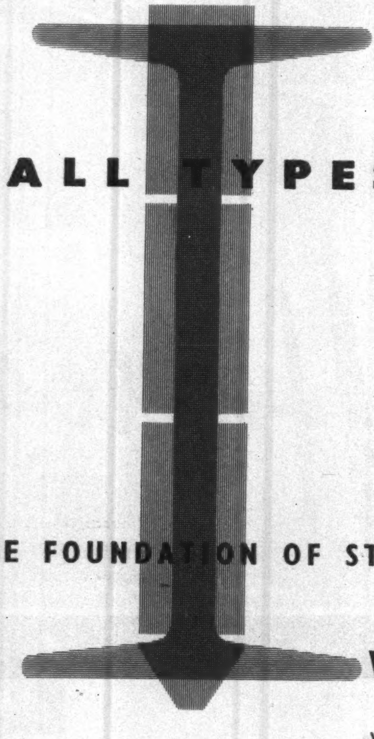
CONTRACTORS etc

Offices at Paddington. *Architects:* C. H. Elsom & Partners. *General contractors:* Tersons Ltd. *Lifts:* Otis Elevator Co. *Heating, hot water and ventilation:* G. N. Haden & Sons. *Internal plumbing, rainwater plumbing, dry riser and hosereel installation:* Matthew Hall & Co. *Electrical installation:* Phoenix Electrical Co. *Metal windows, ventilation, glazed roof, balcony balustrading:* Williams & Williams Ltd. *Lightning protection:* R. C. Cutting & Co. *Terrazzo pavings, wall linings and lavatory partitions, mosaic wall facing:* W. B. Simpson & Sons. *Thermoplastic flooring:* Armstrong Cork Co. *Metal balustrades, core rails, guard railing, staircases, etc.—South Site:* George Wright (London) Ltd. *Metal balustrades, core rails, guard railing, staircases, etc.—North Site:* Light Steelwork (1925) Ltd. *Staircase plastic handrails:* Marley Tile Co. *Rolling shutters:* Haskins Rolling Shutters. *Marble wall lining:* Art Marbles Stone & Mosaic Co. *Entrance hall screens:* James Gibbons Ltd. *Bored piling:* The Cementation Co. *Special damp-proof courses:* Ruberoid Co. *Fibrous plaster and acoustic tiles:* Jonathan James Ltd. *Boardroom and members' room furnishing—Block C:* Hille of London Ltd. *Horticultural work:* Gilliam & Co. *Boardroom panelling—Block C:* H. N. Barnes Ltd. *Venetian blinds—Block C:* J. Avery & Co. *Special rendering:* Mineralite Ltd. *Cradle runways:* Palmers Travelling Cradle & Scaffold Co. *Bricks:* Richard Parton. *Incinerators:* Sloan Electric Co. *Ironmongery:* Alfred G. Roberts Ltd. *Floor springs and overhead door closers:* Comyn Ching & Co. *Flush doors:* Glikstein Doors Ltd. *Sanitary fittings:* Stitsons Sanitary Fittings Ltd. *Precast concrete mosaic faced infilling panels and exposed aggregate cladding units:* The Modular Concrete Co. *Dry riser inlet boxes and outlet covers:* George Wright (London) Ltd. *Glass dome lights:* T. & W. Ide Ltd. *Folding ladders:* Loft Ladders Ltd. *Special light fittings:* F. H. Pride Ltd.; Frederick Thomas & Co. *Rubber door mats:* Redfern's Rubber Works Ltd. *Double glazed units:* Hollowseal Glass Co. *Glass cladding units:* Plyglass Ltd.; Pilkington Bros. Ltd. *Concrete paving, bollards and planting bowls:* Mono Concrete Ltd. *Electric clocks—Block C:* English Clock Systems Ltd. *Thiokol rubber jointing compound:* British Paints Ltd. *Paint:* Hadfields Ltd. *Special wall tiles:* Langley London Ltd.; Carter & Co. *Glass mosaic:* Proctor & Lavender Ltd.; Dennis M. Williams Ltd.

Seamen's Hostel at Singapore. *Architects:* W. W. Wood and Partners. *General contractors:* Paul Y. Construction Company. *Cine equipment:* G.B.-Kalee Ltd. *Roller shutters:* G. Brady & Co. *Fans:* General Electric Co. *Fluorescent light fittings:* Atlas Lighting Ltd. *Electric wiring:* Siemens Edison Swan Export Ltd. *Metal windows:* Crittall Manufacturing Co. *Laminated plastic:* Formica Ltd. *Door furniture:* Josiah Parkes & Sons. *Sanitary ware:* Associated Clay Industries Ltd.

Factory at Ilkeston *Architects:* Clarke Hall, Scorer and Bright. *General contractors:* Bovis Ltd. *Bricks:* Proctor & Lavender Ltd. *Roofings:* Wm. Briggs & Sons. *Lettering, tank tower:* Plyglass Ltd. *Patent flooring:* Semtex Ltd. *Central heating:* Young, Austen & Young Ltd. *Sanitary fittings:* Adamsez Ltd. *Rolling shutters:* J. Taylor (Syston) Ltd. *Metalwork:* Lewis & Grundy Ltd. *Lifts:* Evans Lifts Ltd. *Water-softening plant:* The Permutit Co.

Technical College at Colchester. (Second instalment.) *County architect:* H. Conolly. *Contractors:* Hutton (Builders) Ltd. *Sub-contractors and suppliers: Mechanical and heating:* Corton & Bergin Ltd. *Electrical:* Christy Bros. Ltd. *Piling:* The Cementation Co. *Lifts:* Express Lift Co. *Metal windows:* Crittall Manufacturing Co. *Laboratory fittings:* Geo. M. Hammer & Co. *Portland stone:* E. P. Austin. *Chalkboards:* Tabula Chalkboards Ltd.; Mann & Egerton Ltd. *Lettering:* The Lettering Centre. *Woodblock and strip floors:* S. Bennett & Son Ltd. *Thermoplastic and P.V.C. floor tiles:* Rowan & Boden Ltd. *Rubber floors:* The North British Rubber Co. *Cork floors:* Haskel Robertson Ltd. *Asphalte:* Pilkington's Asphalte Ltd. *Terrazzo:* The Arcanum Terrazzo & Stone Co. *Architectural metalwork:* Light Steelwork (1925) Ltd. *Asbestos spray finish:* Turners Asbestos Cement Co. *Door furniture:* James Gibbons Ltd. *Sanitary goods:* Adamsez Ltd. *'Palladio' wallpapers:* Wallpaper Manufacturers Ltd. *Paints:* John Hall (London & Bristol) Ltd. *Acid catalysed wood lacquer:* W. W. Hill & Son & Wallace Ltd. *Tiles:* Carter & Co. *Laboratory taps:* J. S. & F. Folkard Ltd. *Preformed copper traps and wastes:* Econa Modern Products Ltd. *Taps and waste fittings:* Barking Brassware Co. *Curtains:* Heals Ltd. *Lighting fittings:* Forrest Modern Fittings Ltd.; Merchant Adventurers Ltd.; Troughton & Young (Lighting) Ltd.; Frederick Thomas Ltd. *Clocks:* Gent & Co. *Blackout and sunblinds:* J. Avery & Co.



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